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ABSTRACT

This teacher's handbook is the second part of a two-volume curriculum designed to assist teachers providing instruction in vocational English as a second language (ESL) to Indochinese refugees. The main section of the guide, consisting of 24 hands-on core lessons, includes learning activities geared toward helping students develop prevocational, daily living, cultural, and English language skills. Each of the lessons contain some or all of the following: a list of purposes; a list of needed tools and materials; a language pattern drill; a hands-on learning activity; and notes to the teacher regarding preparing and presenting the activity, language skills addressed in the activity, and cultural factors touched upon in the lesson. Also provided in the guide are an introduction discussing its use, 3 optional simulations, 20 optional lessons, 2 sections of optional learning activities dealing with language and literacy, and an appendix containing sample handouts. (MN)

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SHIFTING GEARS 2

hands-on activities for learning workplace skills
and english as a second language

a teacher's handbook

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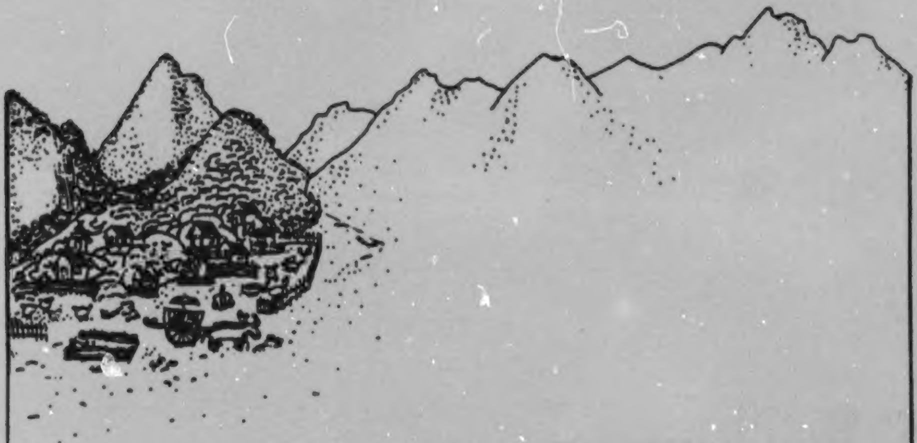
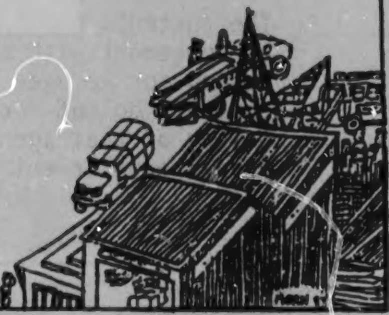
SHIFTING GEARS 2

hands-on activities for learning workplace skills and english as a second language



a teacher's handbook



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Acknowledgments

In 1980, the Experiment in International Living, Save the Children Federation and World Education formed the Consortium. It offers intensive English as a Second Language, Cultural Orientation and Pre-Employment training to refugees from Laos and Cambodia. In the fall of 1982, a teacher's handbook was proposed. It was to reflect the curriculum of the Pre-Employment component created for Indochinese refugees in Panat Nikom, Thailand. The Handbook Development Project got underway in the spring of 1983.

The handbook was to document lessons especially designed to provide Hilltribe people--Hmong, Mien, Tin, Tai Dam--with an introduction to technology found in an industrial society, survival skills needed to keep a job, and related English as a Second Language.

The first handbook, then entitled simply Shifting Gears, was published in October of 1983 by the Experiment in International Living. Members of the development team included Igor Barabash and Marilyn Gillespie as writers and Patrick Moran as editor. Igor and Marilyn complied and wrote the lessons; Igor did the illustrations; Pat added sections on techniques and lesson planning; Stephen Amstutz wrote technical notes. Per Christiansen and Jeff Nellhaus provided technical assistance and served as liaison between the pre-employment program and the writing team.

Shortly after the first book was completed, plans began for a second volume, Shifting Gears, Book 2. Marilyn Gillespie and Fred Ligon became co-editors. The second volume followed the same format as the first and drew upon work completed by the initial writing team. The second book includes an additional set of 24 core lessons as well as supplementary lessons and language activities. Fred Ligon wrote and illustrated the Optional Lessons and Language and Literacy Activities. In addition, Fred illustrated the simulations and the first page of each lesson. Marilyn Gillespie wrote and organized the core lessons, Simulations, Introduction and parts of the Appendix. Puangtang Boorkham illustrated the activity steps for each of the core lessons and prepared and illustrated the handouts. Pat Moran provided the section on Language.

Pamarn Imkaew provided the cover illustration. Lakana Phangluongtnam typed initial drafts of the manuscript. Rosie Teh typed the final draft. Jarupong Jantarapetch did the lettering and helped with preparation of the manuscript.

Both Shifting Gears, Book 1 and 2 are the culmination of more than two years of curriculum development. Many people were involved, and it is impossible to credit each of the teachers, teacher supervisors, administrators and consultants who contributed to the curriculum over the years.

There are several people, however, who were directly involved and deserve special thanks.

Bob Woodhead and Supalak Burnasiri offered their advice and guidance while supervising the printing of Shifting Gears, Book 1. Their suggestions continued to be valuable in the preparation of Book 2.

Jeff Nellhaus, the coordinator of the Pre-Employment Program, and Per Christiansen, the first coordinator, originated, sequenced and refined the lessons found in this volume. Mark Preslen worked on final drafts of several lessons and contributed technical assistance. Mark Sweikhart reviewed the Optional Lessons and Simulations and compiled the Tools and Materials Lists. Julie Paloma offered feedback on the language and literacy games and the language sections of the core lessons. All of the other pre-employment training supervisors assisted in the writing and field testing of the lessons and provided suggestions for additions and changes. They include Michele Blatti, Holly Forrester, Werapong "Udi" Paranone, Greg Williams, Marut Jathiket and Jongkon Yonthabutr. Uaporn Nikoonkarn, English as a Second Language supervisor, contributed the job interview simulation.

Several teachers took extra time to review parts of the curriculum. They include Kom Chamerernlaksa, Mary Joanne Conway, Sally Quinn and Nuntane Savanorke.

Special thanks go to Bernard Zubrowski, Mark Bishop, Mark Sweikhart, Mike Digregorio, Chuck Schumacher and other members of the Pre-Employment Component of the Consortium program in Galang, Indonesia who provided several of the original lessons from which the Optional Lessons were drawn.

Others who offered valuable comments and support include Ann Dykstra, Lynn Savage, David Belskis, Howie Gutow, David Hopkins and Al Hoel.

This book is dedicated to our students, whose ability to learn how to live in a new culture has been an inspiration.

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Introduction

This is a handbook for teachers. It is the second book of a series of lessons designed to prepare refugees to enter and succeed in the American workplace.

The lessons build on basic skills, language and cultural information introduced in Shifting Gears, Book 1. Together the four units (48 lessons) in Books 1 and 2 form an integrated curriculum for preliterate, beginning and intermediate level students.

Teachers can use the entire curriculum as part of a pre-employment training program. Or, individual lessons can be incorporated into an already established curriculum. Lessons could also provide an interesting supplement to English as a Second Language classes.

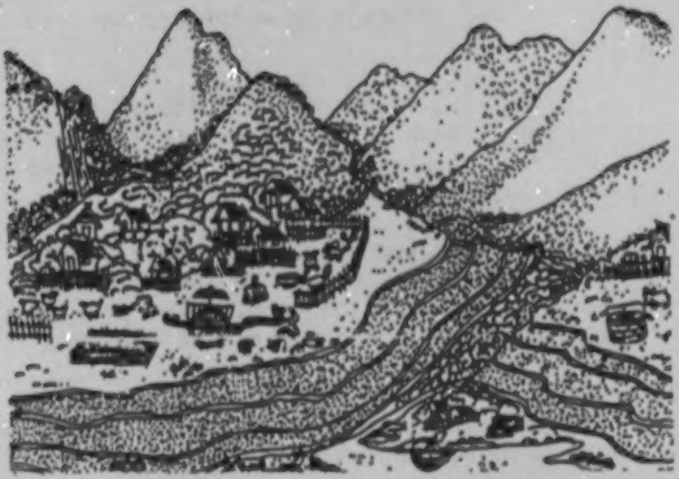
For teachers using the lessons for the first time, many support materials are found in Book 1; including information about how to plan a lesson, teaching techniques, technical notes and a section about buying tools and materials.

Shifting Gears, Book 2 consists of six sections:

1. Introduction. This describes the background and general purposes of the curriculum and explains how to use the handbook.
2. Curriculum. These are the core activity lessons, organized into two units.
3. Simulations. Three special lessons designed to bridge the gap between the classroom and workplace situations.
4. Optional Lessons. Twenty more ideas for lessons to add or substitute for ones in the curriculum.
5. Language and Language and Literacy Activities. A section about learning and teaching language is followed by games, activities and techniques to help teachers plan the language and literacy focus of a lesson.
6. Appendix. This includes suggestions for organizing classes to cut costs, a master list of tools and materials and samples of student handouts.

Although the handbook was written with refugees in mind, many other groups who are not refugees may enjoy the lessons, including children in math and science projects, senior citizens and adult education program participants re-entering the work force.

Background



In a rural village the rhythm of life is organized according to the rising and setting of the sun and the planting and harvesting of crops. Everything that is needed may be produced by hand, without the use of electricity, running water or mechanization. Young people learn by example. They watch and listen as cloth is being woven, crops plowed and tools made. There may be little need to read and write, or to use numbers, maps or calendars. No one punches a time clock; there are few distinctions between work and other parts of family life.

Many refugees require special training to become self-sufficient in the United States. They must not only acquire a new language, but also learn skills basic to living and working in an urban environment, to using technology and to understanding the cultural mores of the American workplace.

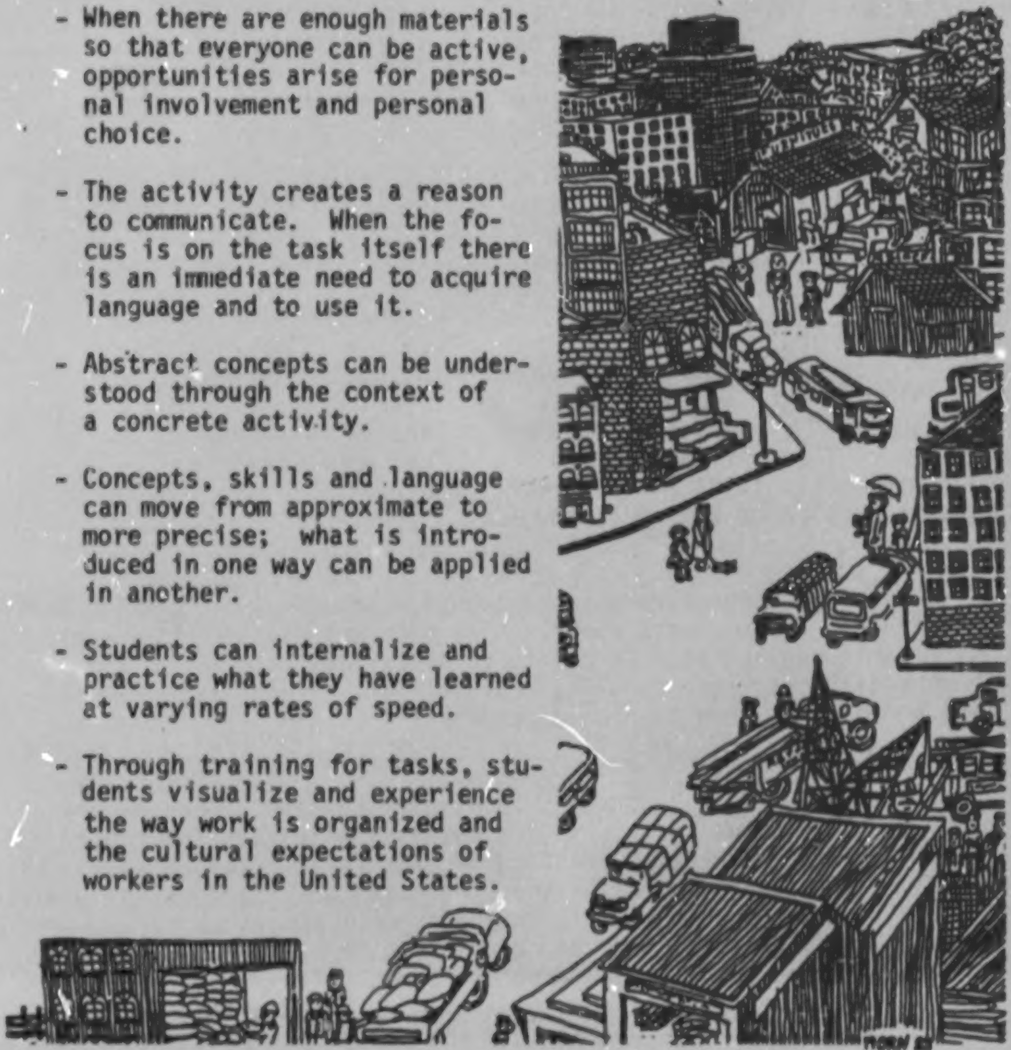
The goal of the lessons found in Shifting Gears, Books 1 and 2, is to prepare refugees to enter and succeed in a first job in the United States. The lessons reflect a common core of skills, concepts language and cultural understanding which employers expect a beginning worker to know as a pre-requisite to becoming employed.

The lessons can be used by students who cannot read and write in their own language and who have never studied English, and also by those who can speak, read and write in English at a beginning or intermediate level.

Originally, the curriculum was developed for Hilltribes people who came from rural areas of Laos to a refugee program in Thailand. In May, 1982 it became part of an intensive twenty week program for adults bound for the United States. Later, as the program grew, it was expanded to be useful to other groups of refugees who may have lived in cities but who still needed training to prepare to adjust their skills to the American workplace.

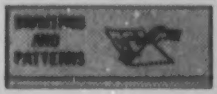
The lessons are designed to encompass the apprenticeship learning style with which refugees are familiar and also to simulate many aspects of on-the-job training which they may encounter in beginning jobs. Each lesson is based on a task or activity. The activity, whether it is solving a problem, such as following a diagram to put together plumbing parts, or completing a project, such as making a wooded jig, provides a context for other learning. In field-testing the lessons, we found several reasons for planning the lesson around an activity.

- When there are enough materials so that everyone can be active, opportunities arise for personal involvement and personal choice.
- The activity creates a reason to communicate. When the focus is on the task itself there is an immediate need to acquire language and to use it.
- Abstract concepts can be understood through the context of a concrete activity.
- Concepts, skills and language can move from approximate to more precise; what is introduced in one way can be applied in another.
- Students can internalize and practice what they have learned at varying rates of speed.
- Through training for tasks, students visualize and experience the way work is organized and the cultural expectations of workers in the United States.

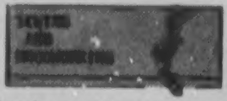


Book 1

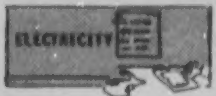
The chart on the right lists the forty-eight lessons that make up Books 1 and 2. Since the lessons in this book build on those in Book 1, it's a good idea to become familiar with them, or, if possible, teach them first. The lessons fall roughly into five skill areas although concepts may be introduced in one skill area and are often applied in another.



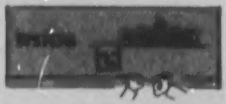
Activities in this skill area develop visual and spacial perception, the ability to make sense of written symbols and basic elements of standardization. From making simple designs with lines and circles, students progress to reducing the size of patterns by using grid paper. They also make three dimensional boxes from flat patterns.



Students learn how to use hand and electrically powered tools, follow safety procedures and train for a new job. Activities develop the ability to estimate needs, plan tasks and report problems. Each student designs and makes a cutting board and a cloth bag.



Activities involve using real equipment to demystify the functions of electrical devices. Students join wire, put together extension cords and solder electrical connections. They apply these skills to make and use a test light and a terminal board. The lessons build up to the production of simple lamps.



Students find innovative ways to use pipe, couplings and faucets to transport water. They sort and classify parts and use them to create a pipe system from a diagram. They also fill out inventory forms and time sheets and begin using them as a daily practice.

MEASUREMENT

Book 1 contains 36 Numbers Lessons. Each one takes twenty or thirty minutes. By introducing two or three a week, students gradually develop language and skills they need for the other lessons. Students play number recognition games using a Spinner Board, identify equal parts and wholes using Cuisinaire rods, and use calculators to practice numeracy. In a series of lessons they learn about standard units of measurement by making and refining their own rulers. Some Numbers Lessons, which introduce addition and subtraction, American currency and the use of pounds and inches can be taught along with the lessons in Book 2.

Skills Areas

UNIT	ELECTRICITY	SEWING AND WOODWORKING	DRAWINGS AND PATTERNS	SYSTEMS	MATH AND MEASUREMENT
1	2.Connecting Electrical Wire		3.Lines and Circles	1.Water Systems	(See corresponding Numbers Lessons in Shifting Gears, Book 1.)
	4.Extension Cords	5.Using A Drill	6.Designs		
	7.Wire And Solder 9.Circuit with a Bulb and Battery				8.Measuring with String
	12.A Test Light	11.Sewing Machine	10.Reducing A Drawing		
2		13.Sawing A Cutting Board	14.Planning A Cutting Board	15.Taking Inventory	
	16.Circuit With A Switch		17.Patterns For Cubes	18.Using A Time Sheet	
	20.Making A Terminal Board	19.Sewing A Bag	21.Designing Boxes		
	23.Soldering Terminals 24.Making A Lamp			22.Plumbing Diagrams	
3	27.Finding Electrical Connections		26.Constructing Identical Boxes	25.Timing A Task	
				29.A Floor Plan	28.Length And Width 30.Measuring Volume
		31.A Metal Shelf		32.Making Pancakes	33.Weighing Things
				34.Filing By Letter 35.Making A Dictionary	36. Understanding Place Value
4	37.Positive And Negative Terminals 38.A 12 Volt Battery And Bulb 39.Circuit with Many Bulbs				
		41.Sewing A Shirt	40.A Shirt Pattern	42.Sorting By Attribute	
		43.Making A Jig 44.Sanding And Spray Painting		45.Make Something	
	46.Do It Yourself		47.Try Another One	48.The Last One	

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Language and Culture

Throughout the activities, the tasks themselves provide a rich and varied context for acquiring language and developing an understanding of what an American work environment will be like. Whenever possible, the activities mirror what employers and refugee organizations indicate refugees most need to know to hold a job.

Since language is consistently reported to be the single greatest barrier to employment, the curriculum is designed so that every activity, from the first day, can be taught entirely in English. Students may begin by simply watching demonstrations and following instructions. Gradually, as day after day they begin to hear simple language repeated, they become able to:

- follow and respond to instructions.
- indicate understanding.
- ask for clarification.
- name and describe items they need.
- report progress.
- ask for assistance.
- give safety warnings.
- read and write numbers, measurements, time and prices.
- read and write worksite words and personal information.
- use common language rituals to socialize, invite, make excuses, apologize and describe skills.

Each lesson includes a language focus. As in the skill areas, the language students are expected to understand and use mores from approximate to more precise. The goal is for students to use language to get the job done, rather than to memorize or master a certain language point each day.

Cultural points including the importance of communication, elements of on the job training, how to get along with supervisors and co-workers and American values toward work and time are also addressed throuhout the curriculum. This is done through direct experience, for example by signing in at the beginning of the day, simulating an assembly line and having the teacher act in the role of a job supervisor.

It's important that students understand the reason why a lesson is being taught. A rationale is useful to include at the beginning or end of class, especially for students who are not already living in the United States. Often it's possible to relate the skills practiced in a particular lesson to those required for typical jobs or to make home repairs. For example, "Circuit with Many Bulbs" will help students visualize the function of a fuse and how to change one.

Book 2

The lessons in Book 2 involve using more precise standards of measurement, completing more complex projects and learning language and cultural information even more directly related to the workplace.

Students refine ways to:

quantify - by measuring using units familiar to Americans, including inches, feet, ounces, pounds, teaspoons, cups, minutes and hours;

standardize - by following work orders to produce just one part of a finished product, and by using a written recipe to cook, a pattern to sew and a jig to cut lengths;

classify - by labeling a floor plan with alphanumeric codes, filing names in alphabetical order, sequencing tool pictures and sorting things by size, shape, color and other attributes;

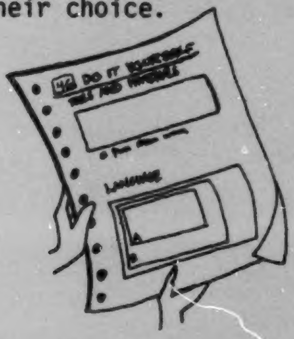
analyze - by estimating what's needed, deciding the steps to follow to complete a project, judging quality and troubleshooting problems;

represent - by using schematic symbols on diagrams, labeling dimensions on charts and maps, putting together a simple dictionary and writing personal information;

produce - by working with attention to speed and quality, by simulating elements of mass production, by using mechanized tools.

UNIT 4

Several of the lessons in Unit 4 involve multi-step procedures; students work on the same project for two or three days. Two sewing lessons result in finished shirts. Woodworking lessons include making a jig and then using it to cut blocks. Three electricity lessons develop an understanding of how different kinds of batteries provide power in homes and cars. One lesson, "Make Something" gives teachers a chance to assess students abilities by observing how they complete a project of their choice.



THE BLANK LESSONS

By the time teachers have completed Lesson 45, they may have noticed areas where students need more practice, or thought of their own ideas for lessons they'd like to try. Lessons 46, 47 and 48 consist of blank lesson plan forms. Teachers can use them to write their own lessons. They can develop one or more of the Optional Lessons into detailed lessons. Or, they can teach the Simulations.

Using the Handbook

Planning a Unit

Each unit has twelve lessons. Most of them can be finished in a one and a half or two hour class period. In the program where the curriculum was field-tested, three or four lessons were taught a week. The other days were used to finish up projects, teach Numbers Lessons or for cultural activities. After Unit 4 teachers organized simulations. You may find other ways to sequence the units. Refer to the "Starting Small" section in the Appendix if you need to shorten the curriculum, and to the variations in the teacher's notes for ways to expand.

Planning Language

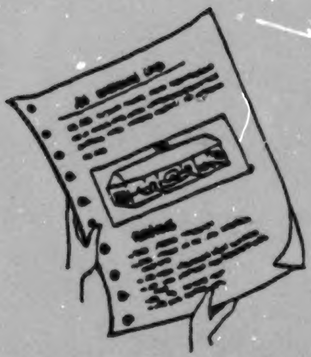
At the beginning of each unit are three language planning pages: Structures, Everyday English and Literacy. The Structures pages are a summary of the sentences which are introduced in the twelve lessons. They can help you to plan a language assessment at the beginning of the unit. Then, you can add, reduce or adapt the language of the unit to meet your students needs. The Structures pages can also be used as a checklist at the end of the unit to review your students' progress.

The Everyday English page has expressions students are likely to hear on the job (e.g. "Give me a hand." and "Take it easy."). It also has social dialogs related to the workplace. The Literacy page suggests basic measurements, worksite signs and personal information you can teach your students to read and write. Include this language when and where you feel it is appropriate. See the Language Activities and Literacy Activities for games and techniques to teach the language on the planning pages.

A Lesson

The next page describes the seven parts of each lesson. You'll notice that there is no lesson plan as such. It's up to you to decide how you will fit together the language, skills and culture; whether to have your students work as a team, in pairs or individually. You may want to allow students to discover their own best way to do things in some lessons and have them precisely follow your demonstrations in others. We encourage you to find innovative ways to use the lessons.

The Lessons

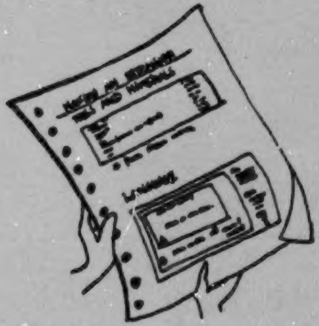


An Overview tells you at a glance what the lesson is about.

The Purposes outline key objectives of the lesson. The Purposes can be used to help plan reviews and evaluations.

The Tools and Materials section identifies the kinds and quantities of materials a class of 12 needs to complete the activity. Starred items (*) require special preparation before class. A composite list of all the tools and materials is in the Appendix, as are student handouts which go with the lessons.

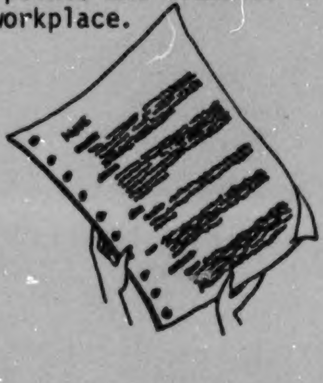
A Language Box suggests sentences and vocabulary which can be introduced during the activity. It is divided into two levels. More advanced students can practice both A and B level language. Vocabulary in capital letters can be taught as part of a literacy focus. Underlined words indicate points where the pattern or the vocabulary can be varied. Look at the vocabulary column on the right side for alternatives.

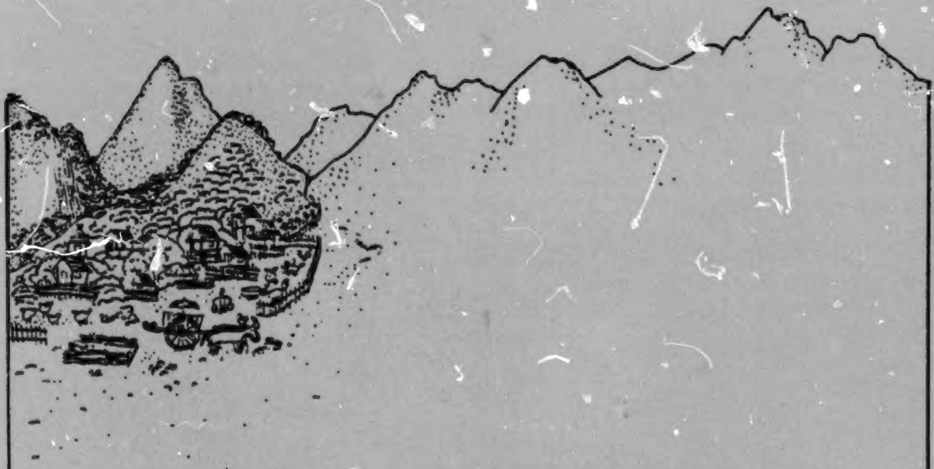


The Activity itself is described in a series of illustrated basic steps. If details are required, they are found in the teacher's Notes section.

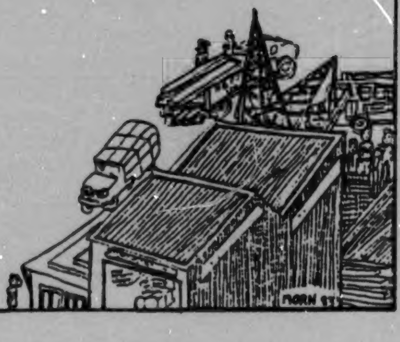
The Culture section has background information about safety, cultural differences, technical points and elements of the American workplace.

The Notes pages tell you more about how to prepare for the activity, and offers variations, language ideas and cultural exploration activities.





Unit 3



Structures

This is an outline of sentences suggested in language boxes for Lessons 25-36. It can be used as a planning guide to simplify, expand or adapt language.

A LEVEL		B LEVEL

GIVING AND CLARIFYING INSTRUCTIONS

Draw a rectangle. Verb + object	Draw a rectangle? repetition/rising intonation	Draw a red square. Verb + object What size? What color? Where? How long? When? Who? question words
	A rectangle? repetition of object	
Like this, right? OK?	Right. OK. repetition of tag	

YES/NO QUESTIONS

Was it 3 x 2?	Yes, it was. No, it wasn't.	Have you got 15?	Yes, I've got 15. No, I've got 10.
Were they 3 x 2?	Yes, they were. No, they weren't.	Has he got 15? she	Yes, he's got 15. No, she hasn't got 10.
Did you draw it?	Yes, I (already) did. No, I didn't.		

QUESTION WORDS

			Short Response	Long Response
What What size Which one How many How much	do did	you have? need? you use?	A square. 3 inches. That one. Three.	I have a square. I need a 3 inch one. I used that one. I used 3 cups.
Where How long	is was are were	it? they?	On the table. 3 inches.	It was on the table. They were 3 inches long.
What are you going to		do? use?	Cut this. Scissors.	I'm going to cut the paper. I'm going to use scissors.
Did it come before OR after V?				It came after V.

Structures

A LEVEL		B LEVEL	
REQUESTS			
Can you draw this?	Yes, I can. Sorry, I can't (now). In a minute.	Could you correct this, please?	Sure. No, could you help me?
		Where do you want the box? can I get a	Here. Over there. Ask (_____). name

STATEMENTS/EXPLANATIONS

What did you do?

First I drew it. I used a pencil.
Second, I cut it. I used scissors.
Next, I glued it. I used glue.

Describe the box.

It is three squares long.
It isn't large.
It has four sides.
He didn't finish it.

COMPARISONS/DESCRIPTIONS (A and B Levels)

Order	Location	Size	Time/Weight	Quantity/Quality
first	front	big	fast	(_____) enough
second	back	small	slow	too (_____)
third	middle	long	heavy	much
fourth	right	wide	light	little
fifth	left	short		more
next	top			most
last	bottom			less
before	above			least
after	beside			better
	below			best

VERBS (See Units 1 and 2 for verbs previously introduced).

put (_____) together
take (_____) apart
start (with)
begin
finish
do (_____)

write
time
sort
count

taste
mix
use
join
wait

move
light
cook
weigh
guess

name
spell
file
find

correct
describe
stack
transfer

serve
eat
fill in
fill out

Everyday English

Use language students will hear on the job. Here are a few suggestions.

GETTING THINGS DONE

(Don't forget to) sign in.
(Just) write down your initials.

Help me out here.
Give me a hand.
Take it easy!

Oh no!
Woops!
Oh boy!
Darn it!
Ouch!
Don't touch that.
Stand back.
That's more like it.
Great.
Terrific.
Time's up.
So long.
(Remember to) sign out.

GOING FURTHER: CLARIFICATION

First, glue the box.

Glue the box.
The box.
The red box?
The red or blue one?
Like this?
Here?
Now or later?
What did you say?

FINDING OUT

Where's the office?
rest room?
lounge?
store room?

It's over there.
It's on the first floor.
It's next to the ______.

How do you spell your name?

It's ______.

What's your address?
social security number?
phone number?
birthdate?

It's ______.

Can you measure?
add?
solder?
use a calculator?
use a drill?

Yes, I can.
No, I can't.

How long did you go to school?

I didn't go to school.
For ______ years.

SOCIALIZING

How's it going?
OK.
Not too bad.
No problem.

How was your weekend?
Fine.
Not bad.

What did you do?
Nothing.
Not much.
I stayed home.
I visited my friend.
I went to ________.

Who did you go with?
I went with _______.

What are you going to do tomorrow?
I'm going to ______.

Would you like to _____ with me?
eat
go to my house
have coffee
come

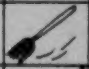
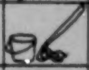
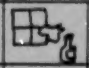
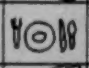
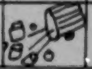
Sure.
What time?
Sorry, I can't.

Literacy

NUMBERS AND MEASUREMENTS

NUMBERS - 1 - 300
FRACTIONS - ½, ¼, 5/8
DIMENSIONS - 3 x 2
LENGTH - CM. (CENTIMETER)
" (INCH)
FT. (FOOT, FEET)
YD. (YARD)
VOLUME - t. (TEASPOON)
T. (TABLESPOON)
C. (CUP)
QT. (QUART)
WEIGHT - OZ. (OUNCE)
LB. (POUND)
KG. (KILOGRAM)
TIME - MIN. (MINUTE)
SEC. (SECOND)
1:01 - 12:59
MONEY - $.01 - $10.00

PERSONAL SCHEDULES

	Yan	Chai	Lee	Kao
9:00				
10:00				
11:00				
12:00				
1:00				

SIGHT WORDS

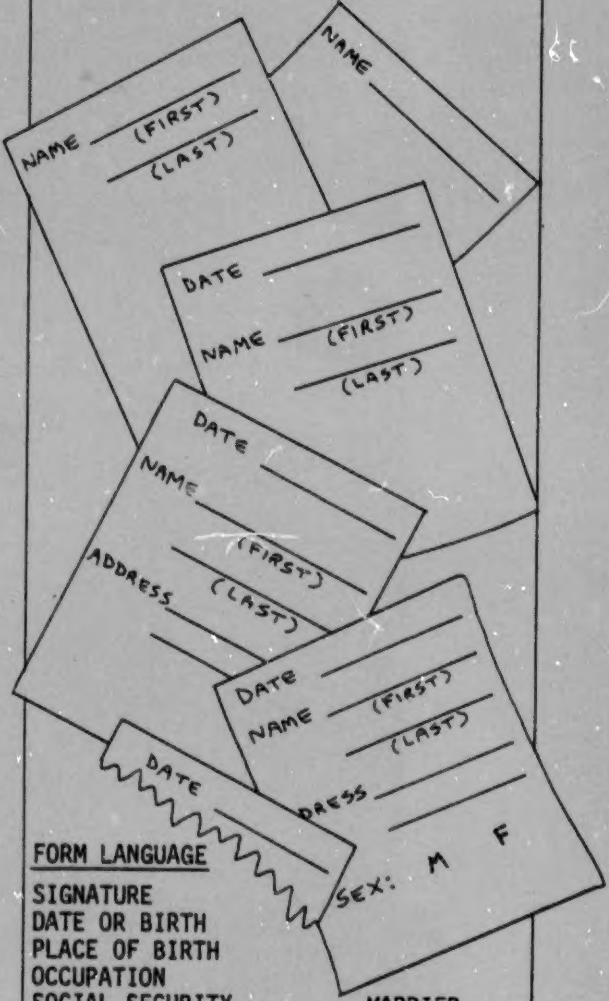
WET PAINT
KEEP OFF
HIGH VOLTAGE
DANGER
CAUTION
POISON
UP
DOWN

IN
OUT
ON
OFF
(PERSONNEL)
OFFICE

ALPHABET AND CODES

LETTERS A - Z
NUMBERS 1 - 300
CODES A19 4C
B2 15D
C209 139E

PERSONAL INFORMATION


NAME
NAME (FIRST)
(LAST)
DATE
NAME (FIRST)
(LAST)
DATE
NAME
(FIRST)
ADDRESS
(LAST)
DATE
NAME (FIRST)
(LAST)
DRESS
SEX: M F
DATE

FORM LANGUAGE

SIGNATURE
DATE OR BIRTH
PLACE OF BIRTH
OCCUPATION
SOCIAL SECURITY NUMBER

MARRIED
SINGLE

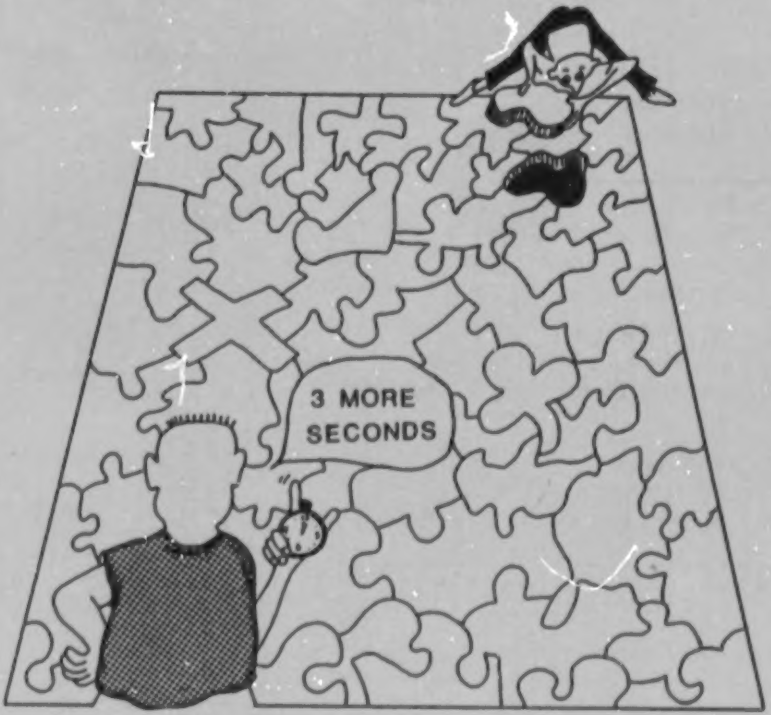
Planning Page

OK. THIS IS WHERE
I DRAW THE LINE.
WHERE?

Lesson 25

Timing a Task

By timing various short activities such as sorting silverware, stuffing envelopes and opening a combination lock, students learn how to read the minute and second hands on a clock and record time on a form.



Purposes

- To develop a sense of minute and second units of time.
- To read a clock.
- To read and write time on a form.
- To complete a task within a given time.
- To report the time required to complete a task.
- To provide feedback about speed or quality of work.

25 Timing a Task

Tools and Materials

stop watch or clock with a second hand	3 per class
screwdriver	6 per class
silverware (plastic or metal)	
fork	36 per class
knife	36 per class
spoon	36 per class
small bucket or tray (for sorting silverware)	9 per class
door lock assembly kit (latch-type)	10 per class
combination lock	6 per class
paper (letter size)	60 sheets per class
envelope (business size)	60 per class
pencil	1 each
cardboard circles*	
divided into 2 equal parts	3 per class
divided into 5 equal parts	3 per class
divided into 10 equal parts	3 per class
alphabet flashcards	3 sets per class
pictures of tools with the name of each tool printed under the picture*	3 of each picture/ class
Timing a Task Form*	1 each
Time Card Form (optional)*	1 each
Tools and Materials Inventory Form (optional)*	1 per class

*preparation required before class.

Language

Sort the silverware.	
How many seconds did it take?	(It took) 10 seconds.
How long did it take?	2 minutes and 5 seconds.

A

Could you slow down?	OK.
work more carefully?	Sorry.
Did you fill in the form?	Yes, I did. No, I didn't.

B

sort
fold
put together
take apart

silverware
paper
lock
circles

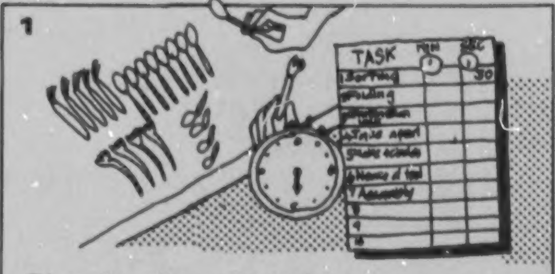
seconds
minutes

1-60

25 Timing a Task

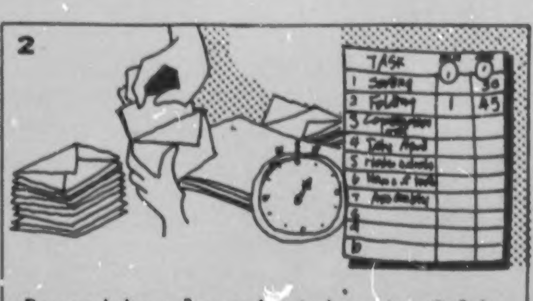
Activity

1



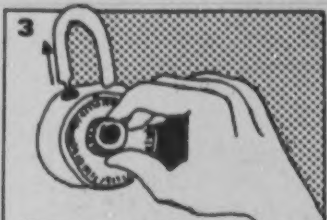
Time how long it takes to sort plastic silverware into buckets. Write the time on a form.

2



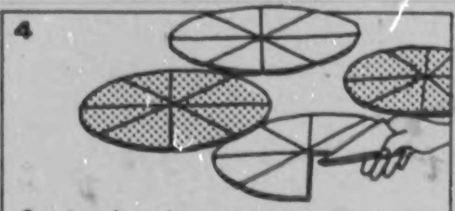
Record how long it takes to fold 20 sheets of paper and to put the letters into envelopes.

3



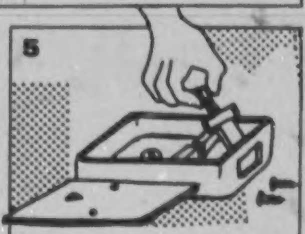
Open a combination lock.

4



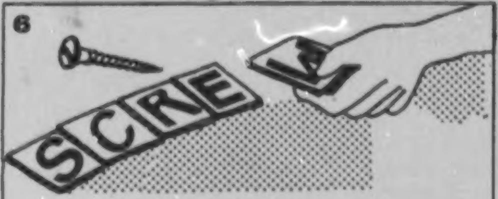
Sort pie-shaped cardboard wedges to make 4 circles.

5



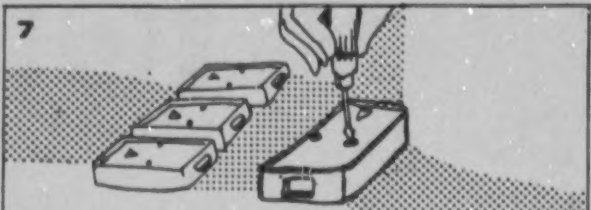
Take apart a door lock.

6



Use alphabet cards to spell the name of a tool. Time how long it takes.

7



See how many door locks one group can put together in 3 minutes. Check to see if each was assembled properly.

Culture

In the U.S., a worker's performance is usually judged on standards of time and quality. Work must be good and it must also be done at a certain speed. Painting cars, "stuffing" circuit boards and plucking turkeys are three jobs that require employees to pace the work they do and consider a balance between quality and quantity.

25 Timing a Task

Notes

Preparation

Required Forms. Samples of forms indicated on each Tools and Materials list can be found in the Appendix: Handouts. For example, the Timing a Task Form is on page 305.

Optional Forms. The filling out of a Time Card and a Tools and Materials Inventory Form were a routine part of each lesson in Shifting Gears, Book 1. Sample forms can be found in the Appendix: Handouts.

Cardboard Circles. Use the cardboard circles prepared for Numbers Lesson 14 ("Expressing Ten Equal Parts Shifting Gears, Book 1). They can be prepared by cutting heavy cardboard into circles approximately eight cms. in diameter. Divide the circles into 2, 5 or 10 equally sized pie-shaped parts.

Lock Assembly Kits. Common latch-type lock assembly kits can be found in most hardware stores. Find locks which are easy to take apart and reassemble. If locks are too costly or not available, substitute some other device.

Pictures Of Tools. Tool pictures can be selected from those found in the Appendix: Handouts. Students complete Step 7 by locating the correct alphabet flashcards required to spell the name of the tool.

Activity

To introduce beginners to reading time: 1) watch and count as a clock measures 60 seconds; 2) show that 60 seconds equal one minute; 3) practice reading and writing times on the blackboard; 4) time a simple activity, such as writing first names.

(For more activities to practice reading time, see the Literacy Activities section.)

Completion of the tasks can be carried out in various ways depending on the level of your students. Here are four options:

- As a Class. Have 3 students compete to finish the task. Everyone in the class records the winner's time.
- 3 Teams and 1 Timer. Divide the class into 3 teams who compete to finish the task first. Rotate so everyone has a chance to do each activity.

Notes

- 3 Teams and 3 Timers. Give each team a clock and a set of materials. Have one team member do the activity while another keeps time. Rotate so every team member has a chance to do each activity.

- Beat Your Own Time. Have each person estimate how long it will take them to complete each activity and time themselves. Who comes closest to their estimates?

Other tasks such as timing how long it takes to attach washers to nuts and bolts, sequencing alphabet cards, filing letters or sorting coins into one-dollar combinations can be added or substituted for the tasks in this lesson.

Language

Description. Ask students to summarize the results on their form, telling how long each task took, which one was fastest, which one they liked the most, etc.

Cultural Exploration

Questions. Ask the students to think about the lesson and answer these questions:

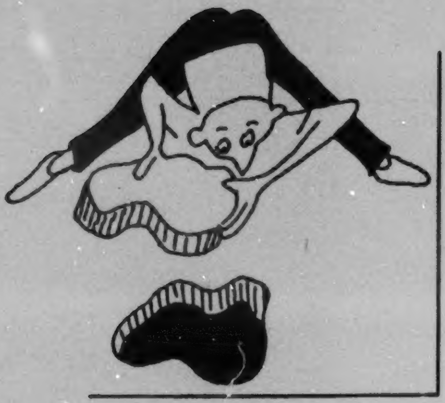
- How does timing a simple task relate to working in the U.S.?
- What effect is there on your work if you know you are being timed?
- In your own country, how is timing relevant to various activities (e.g. planting rice, traveling to the market)?

Reflection. Have the students make a list of situations (based on their observations and learning) when Americans show great concern for time. Have them compare activities in their country and the U.S. that are considered a waste of time.

Forms. Show students some samples of forms and schedules commonly used in entry-level jobs. Ask them to read the times listed on the forms.

25 Timing a Task

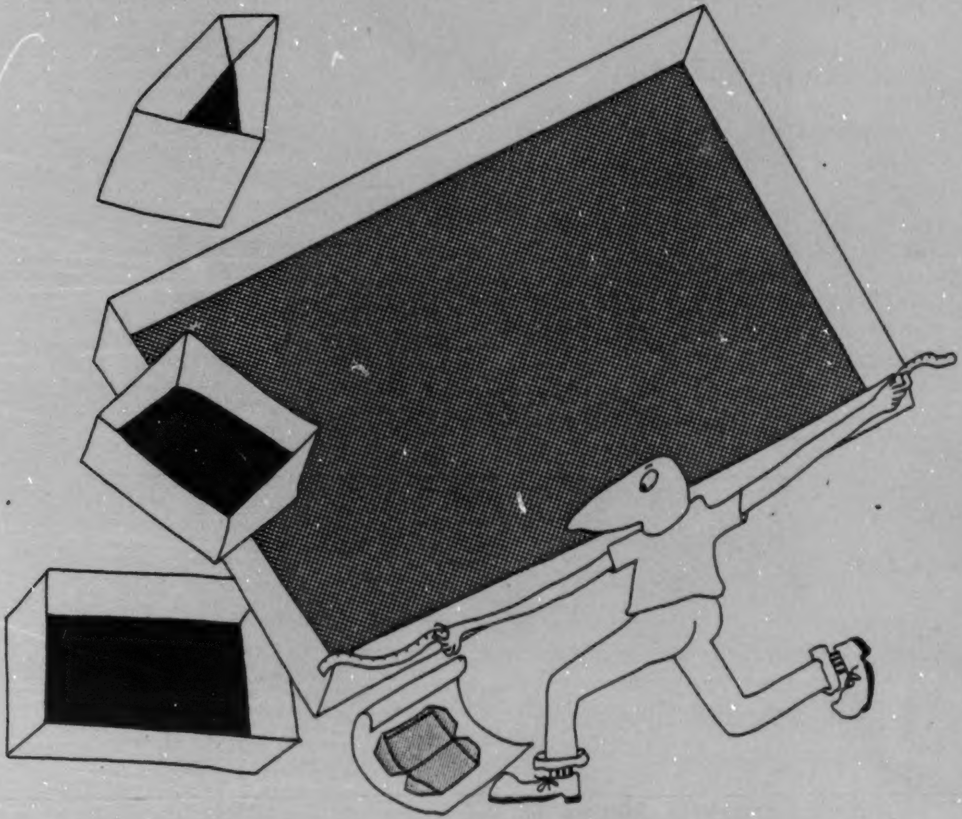
Planning



Lesson 26

Constructing Identical Boxes

Manufacturers use patterns and carefully sequenced assembly steps to mass produce products. In this lesson students reproduce a pattern and follow a series of diagrams to construct identical cardboard boxes.



Purposes

- To follow a series of picture diagrams to complete a task.
- To use a flat pattern to make a 3-dimensional object.
- To work alone to complete a task.
- To describe a sequence of tasks using ordinal numbers.
- To report completed activities.
- To ask what to do next.

26 Constructing Identical Boxes

Tools and Materials

straight edge	1 each
razor knife	1 per pair
scissors	1 per pair
pencil sharpener	1 per class
pencil	1 each
pencils, various colors (optional)	1 each
eraser	1 each
carbon paper	1 each
glue	1 container per class
glue applicator (wooden popsicle stick)	1 per pair
paper clips	6 each
cardboard sheet (8½" x 11")	1 per pair
grid paper (2 cm. squares)*	2 each
chart (5-steps construction)*	1 per class
Pattern For Box*	2 per class
sample cardboard box (prepared from pattern provided for this lesson)*	1 per class

*preparation required before class.

Language

Did you draw the pattern yet? Yes, I did.
No, I didn't.
What's next?

Next, transfer the pattern.

A

draw/pattern
transfer
cut/cardboard
fold/box
glue/box

What did you do first? First, I drew the pattern.

What tools did you use? First, I used a pencil.

B

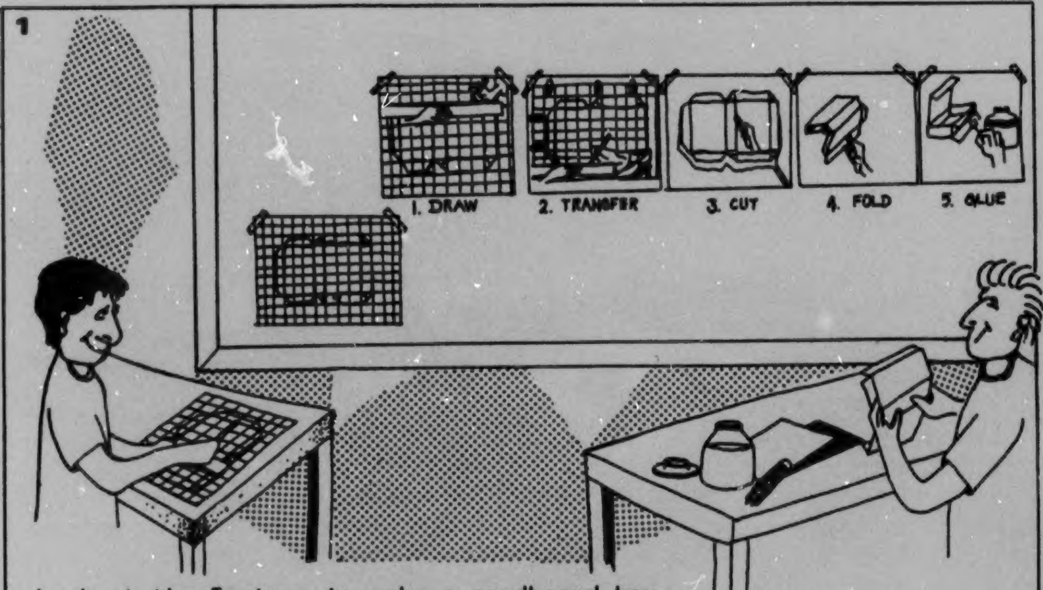
first
second
third
fourth
fifth

drew
transferred
cut
folded
glued

26 Constructing Identical Boxes

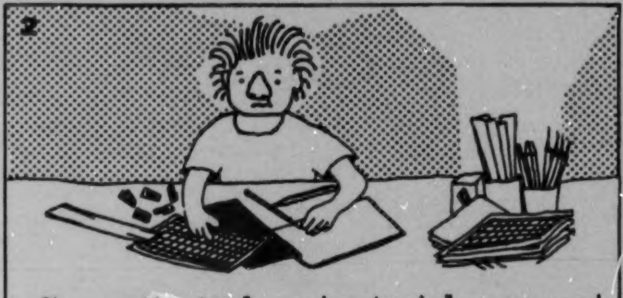
Activity

1



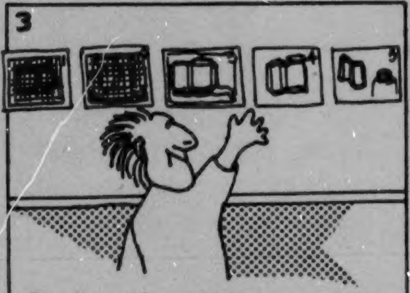
Look at the 5 steps to make a cardboard box.

2



Choose the tools and materials you need. Make a box by following the pictures.

3



Review the steps you completed to make the box.

Culture

Your students will often find themselves in situations where it is inappropriate or impossible to receive complicated oral instructions in English. The instructions on public phones, the directions included with home assembly kits and many tasks on the job are accompanied by a series of pictures or diagrams. Companies provide detailed diagrams for workers to insure quality work.

26 Constructing Identical Boxes

Notes

Preparation

Colored Pencils. Some teachers prefer to use colored pencils when writing on grid paper. The lines show up more clearly.

Wall Chart. Five diagrams which illustrate the steps in making a cardboard box can be copied and made into a large wall chart (see Appendix: Handouts).

Cardboard Box Pattern. A 2-dimensional pattern for the cardboard box is found in the Appendix: Handouts. It is designed to be the correct size to hold one terminal board (made in Lesson 23). These finished boxes will be used in Lesson 28, "Finding Connections."

Activity

Begin the activity by showing an example of a completed cardboard box. Familiarize the students with the pattern used to construct the box, then go over the construction steps diagramed on the wall chart. (Since students have made boxes previously, the emphasis of this lesson can shift to working independently and verbally describing the tasks). The construction steps (and tips) follow:

1. Draw a pattern. Have students reproduce the pattern on grid paper. Students generally have a difficult time with this step. If their work is inaccurate or sloppy, provide them with another sheet of grid paper and ask them to begin again.
2. Transfer the pattern from the grid paper onto a sheet of cardboard. Do this by placing a sheet of carbon paper between the grid paper and the cardboard, and tracing over the pattern. Use paper clips to keep the grid paper, carbon paper, and cardboard from shifting while tracing over the pattern.
3. Cut the pattern. Cut along the solid lines only.
4. Fold the pattern into a box. For neat, straight folds, first score the cardboard pattern along the dotted lines. Use a razor knife and make shallow cuts. The scored side will end up being the outside of the box.
5. Glue the box together. Be careful not to glue the side of box which forms a flap and which should open and close.

Have students write their names on their boxes. Store them for use later.

Notes

Language

Order It. Ask a student to give you a set of several tools in a certain order, using ordinal numbers in your instructions. Then, have the student describe what she/he did (e.g. "First, I gave you the hammer.") using past tense.

How Do You Do It? Use the wall chart to review the five steps of this activity. Repeat the instructions a second time, stopping after each step to ask "What's next?". Ask one student to give all the instructions. Ask students to give the instructions to one another in pairs. Have them tell what materials they used with each step.

Cultural Reflection

Using their native language, have students reflect on the questions below:

Were you able to do this task well the first time?

What instructions were you given?

Did you make any mistakes because you didn't understand the instructions?

What can you do when you don't understand an instruction?

How much time do you think it takes a person to learn a new job?

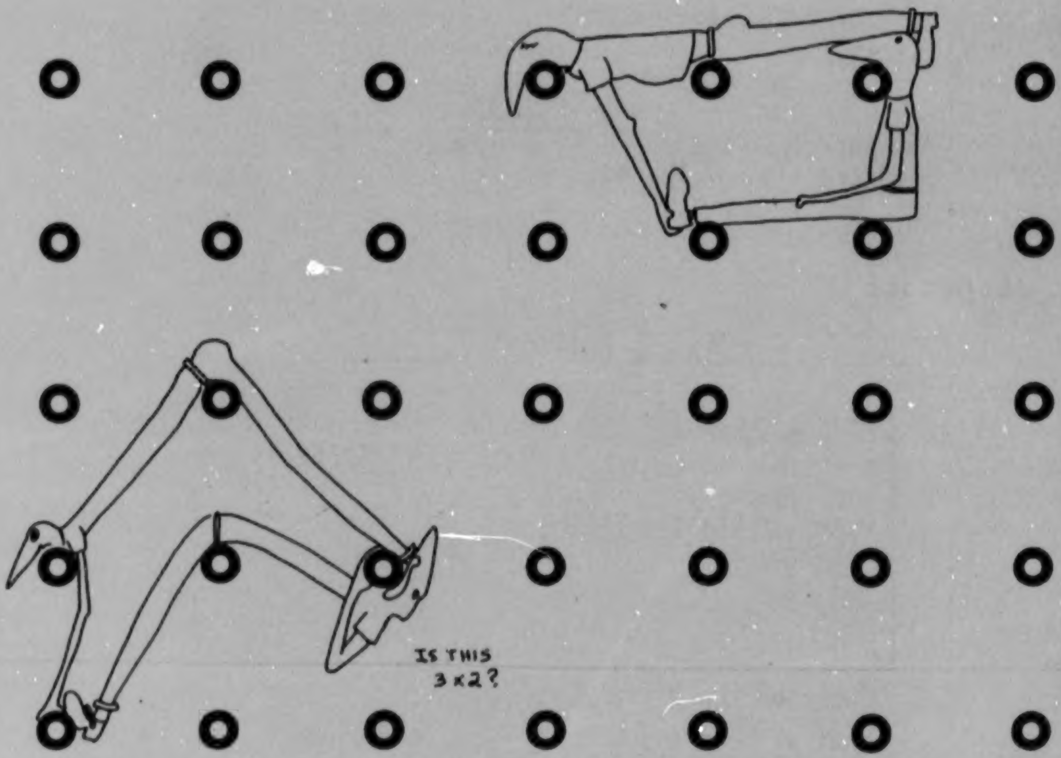
26 Constructing Identical Boxes

Planning

Lesson 27

Length and Width

Imagine buying a rug only to discover that it is too big for your room. A few simple measurements could have prevented the problem. In this lesson, students learn to describe the size of squares and rectangles by reporting their lengths and widths.



Purposes

- To distinguish length and width using non-standard units.
- To read, write and report the length and width of squares and rectangles.
- To accurately transfer a design from grid paper onto a mathboard.
- To compare objects according to size and shape.
- To clarify instructions by repeating the instruction or asking one-word questions.

27 Length and Width

Tools and Materials

straight edge	1 each
pencil sharpener	1 per class
pencil	1 each
pencils, various colors (optional)	24 each
eraser	1 each
rubber bands, various colors	6 each
grid paper, 3 cm. squares*	2 each
mathboard+	1 each

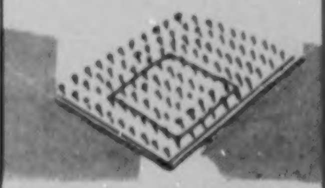
*preparation required before class.
+construction of learning-aid required before class.

Language

Draw a rectangle 3x2.	3x2? A rectangle? A big rectangle?	rectangle square design
Draw a rectangle 5x7 beside it.	Where? Here? What size?	beside above below
A		
Describe the design.		
What is the length? was	3 squares.	length width
Which one is longer? was	This one. That one.	longer wider bigger smaller
Is it 3x2? Was	Yes, it was. No, it wasn't.	1-100 3x2
B		

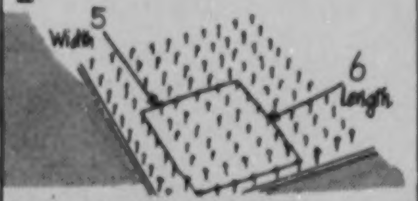
Activity

1



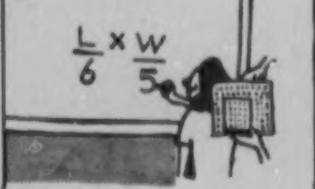
Make a rectangle on a mathboard using rubber bands.

2



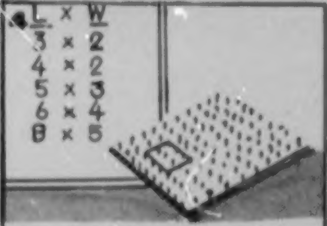
Look at one rectangle. Count the squares along its length and width.

3



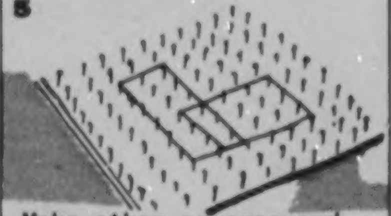
Write the length and width of the rectangle.

4



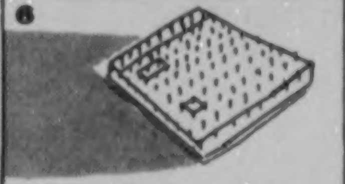
Read and write the size of your own rectangle.

5



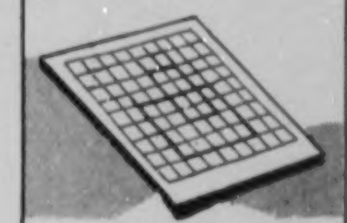
Make other squares and rectangles. Report their size.

6



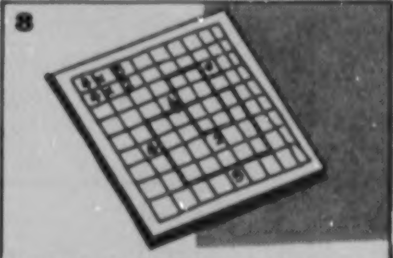
Make the smallest rectangle you can; the largest; the largest square.

7



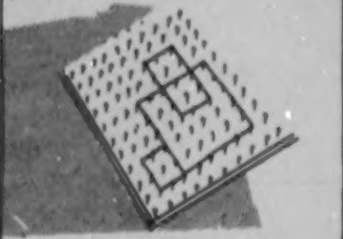
Draw a design on grid paper.

8



Label the length and width of each shape in the design.

9



Make the same design on your mathboard.

Culture

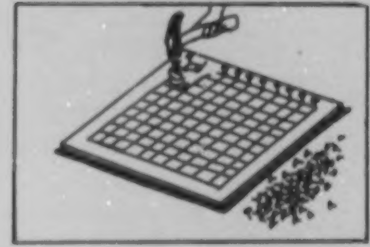
In some cultures, asking a person to clarify an explanation may suggest that the explanation is not a good one. The person giving the explanation might then feel insulted. In the U.S. co-workers and supervisors view a request for clarification as a genuine attempt to understand the explanation and avoid costly mistakes. It is appreciated and respected.

27 Length and Width

Notes

Preparation

Mathboards. To make a mathboard:



1) Cut a piece of plywood into a 33x33 cm. square.
2) Draw a 30 cm. square in the center of the board (leaving 1½ cm. margins on each edge).
3) Divide the 30 cm. square into 100, 3 cm. squares.
4) Hammer a small nail into each intersection. 100 nails will be needed. Choose nails about 2 cm. long so about 3/4 of the nail remains above the board.

No Mathboards? Until mathboards can be built, have students draw their shapes on grid paper.

Activity

The goal of this lesson is to understand how to measure and report length and width. Delete making designs with grid paper (Steps 7 to 9) if students need more practice with Steps 1-6.

For fixed objects, such as doors, length is the distance from top to bottom and width is the distance from side to side. For objects which have no fixed top or bottom, such as a cardboard square or tabletop, length is considered to be the longest side and width the shortest.

Teach Numbers Lesson 26 (Shifting Gears, Book 1) soon after you finish this activity. It will introduce students to measurement using centimeters.

The mathboard can be used to help students visualize the concepts of basic addition and subtraction. Make a shape and count the number of small squares inside it. Add another shape and count the total number of squares in both shapes. Count as you add and take away shapes from the design. This is a good exercise to use before teaching beginners to add with a calculator.

Notes

Language

Clarification. Tell students you are going to give them instructions to draw a design on grid paper. Mumble the first instruction. Have students think of various ways they can ask for clarification (e.g. "What?", "3x2", "Where?"). After each instruction stop and ask students to practice appropriate clarification language. When students have completed the design ask them to describe it to you using "was" and "were" in their descriptions.

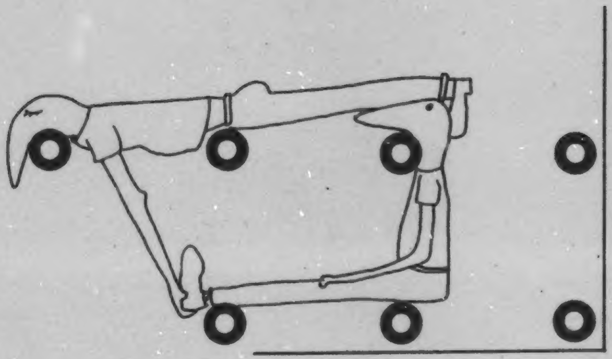
Cultural Exploration

Reflection. Have your students consider how comfortable they are asking a boss or co-workers for clarification and answer these questions:

- How do you feel when you ask a person to explain something again?
- How do you think the other person feels?

27 Length and Width

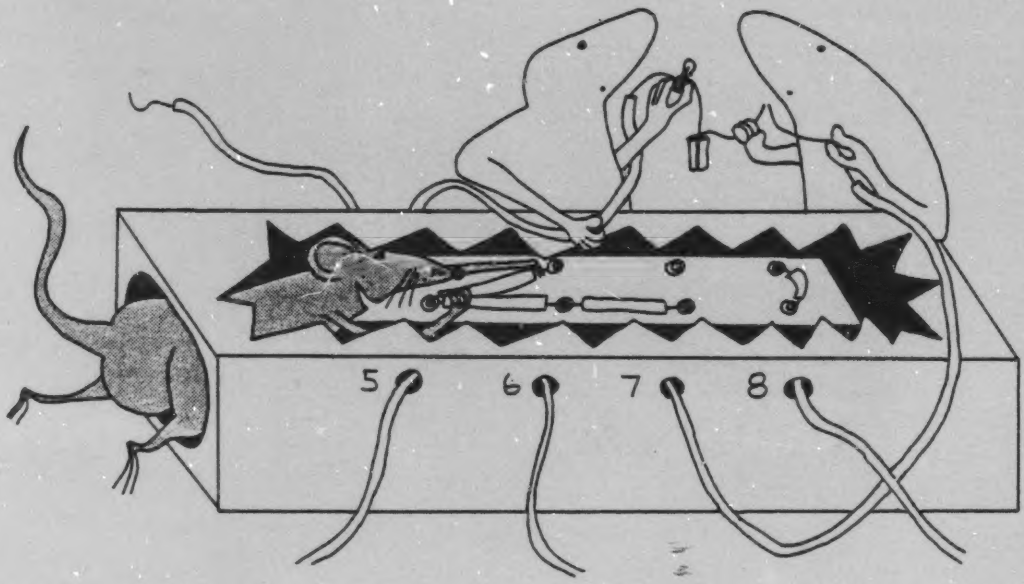
Planning



Lesson 28

Finding Electrical Connections

When machinery breaks down or electrical appliances malfunction, test equipment is often used to uncover problems not visible to the eye. In this lesson students are given a box with wires coming out of it. They use a test light to reveal which wires inside the box are connected.



Purposes

- To use an electrical testing device (test light).
- To construct a diagram according to test information.
- To work as a team to resolve and correct problems.
- To report progress, using past tense.
- To acknowledge a mistake and respond appropriately.

28 Finding Electrical Connections

Tools and Materials

long-nosed pliers		1 per class
pencil		1 each
terminal boards	(made in Lesson 23)*	1 each
cardboard box	(made in Lesson 26)*	1 each
rubber band	(to keep box closed)*	2 each
test light	(made in Lesson 12)*	1 each
Circuit Box Test Form*		2 each

*preparation of teaching and required before class.

Language

Test wires 1 and 2.

Did you test the wires?	Yes, I did. No, I didn't.

A

test the wires
fill out the form
find the connections
open the box
check the form
draw a diagram

Did you make a mistake?	Yes, sorry I made a mistake. No, everything's OK.
Could you correct it?	Yes. No, could you help me?

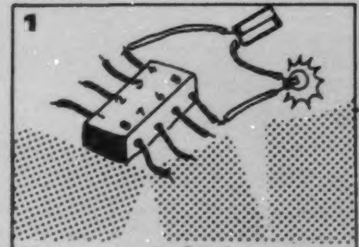
B

you
he
she
they

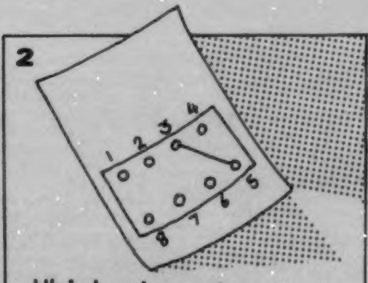
1-8

28 Finding Electrical Connections

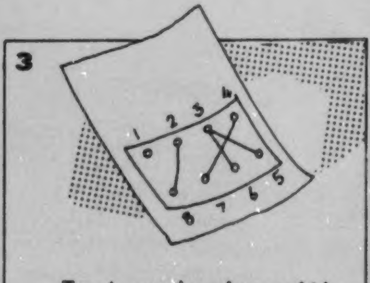
Activity



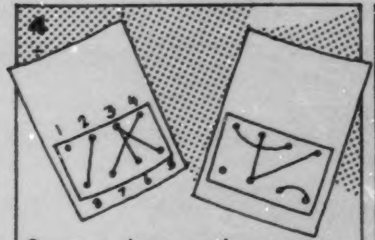
Use a test light to test one wire with the other seven wires.



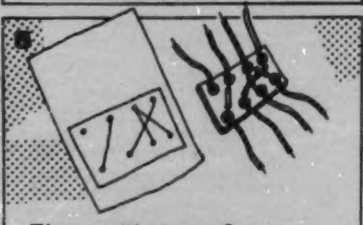
Which wires do you think are connected? Write it on the form.



Test each wire with every other wire. Fill in the form.

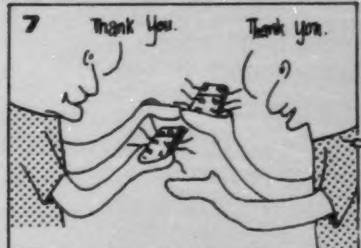


Open a box and compare your terminal board with your form.

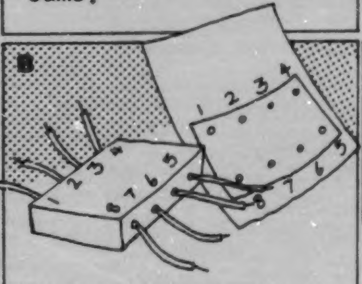


The pattern of connected wires in the box should be the same.

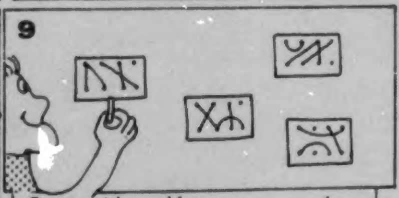
Compare your form with those of the other people. Are they the same?


7
Thank You.
Thank you.

Close the box and trade it for another.



Find out which wires are connected now.



Draw the diagrams made for each box on the blackboard. Compare them.

Culture

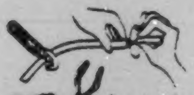
It is important for your students to understand that they are expected to acknowledge their mistakes and respond by making necessary corrections or seeking help. In addition, a supervisor may sometimes give negative feedback on an employee's performance. It is common for this type of feedback to be given to the employee directly and not through a third person.

28 Finding Electrical Connections

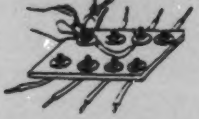
Notes

Preparation

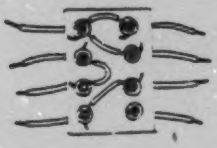
Circuit Boxes. Prior to this lesson one circuit box (with a terminal board hidden inside it) needs to be prepared for each student. Gather together the terminal boards students made in Lesson 23, the small cardboard boxes made in Lesson 26, two rubber bands per box, about 1 meter of bell wire, a wire cutter, a screw driver and long-nosed pliers.

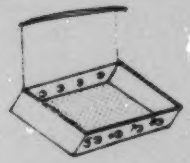


1) Cut a 5 cm. piece of bell wire. Strip about 1½ cm. of insulation from each end. Twist the bare wires.

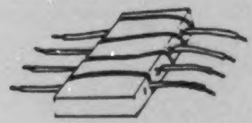


2) Connect the wire between two terminals. Make a number of connections on each terminal board. Try to wire each board a bit differently so students can experience variety in their testing. A good combination is:
   - 3 terminals connected to each other.
   - 2 terminals connected to each other.
   - 2 more terminals connected to each other.
   - 1 terminal with no connections.





3) Make 8 holes in each cardboard box. Number each hole as indicated in the illustration.



4) Put the completed terminals inside the boxes, with one wire coming out of each of the 8 holes. Hold the boxes closed with rubber bands.

Circuit Box Test Forms. Prepare two forms per student (see Appendix: Handouts).

Activity

Begin the activity with a brief demonstration.

1) Let the students examine a box and identify which number goes with each wire.
2) Draw a sample of the Circuit Box Form on the blackboard.

28 Finding Electrical Connections

Notes

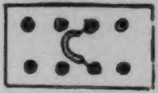
Activity (cont'd)

3) Help students match the wires coming out of the box with wires drawn on the blackboard. (e.g. "Show me wire 5.").

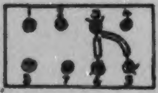
4) Use the test light to determine if any of the wires coming out of the box are connected. When the test light goes on, ask a student to go to the board and draw a line between the wires which appear to be connected.

As a follow-up activity, draw a few diagrams on the blackboard like the ones pictured below. Ask students to make a list or talk about the connections in each diagram.

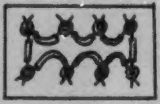
1



2



3

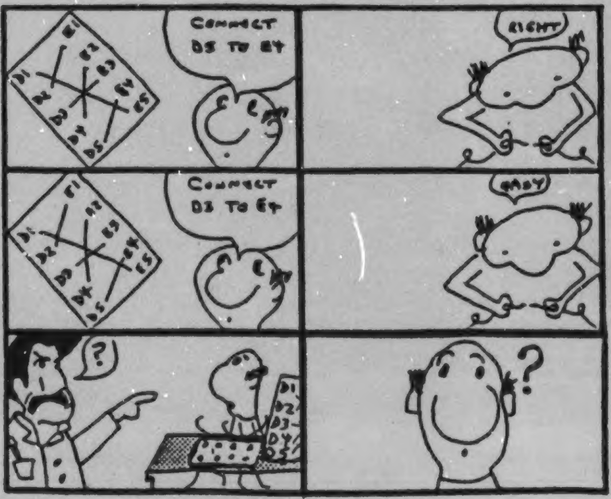


Language

Apologies. In the student's native language discuss situations where co-workers or bosses may need to apologize to each other. Develop role plays from the patterns in the language box (e.g. "the boss" misspells a worker's name, a worker miscounts the number of tools in a bucket, or a worker fills out a test form incorrectly).

Cultural Exploration

Picture Story. Have students "read" the following story in which a supervisor gets angry and criticizes an employee directly. Have students give their opinions on what the employee should do.

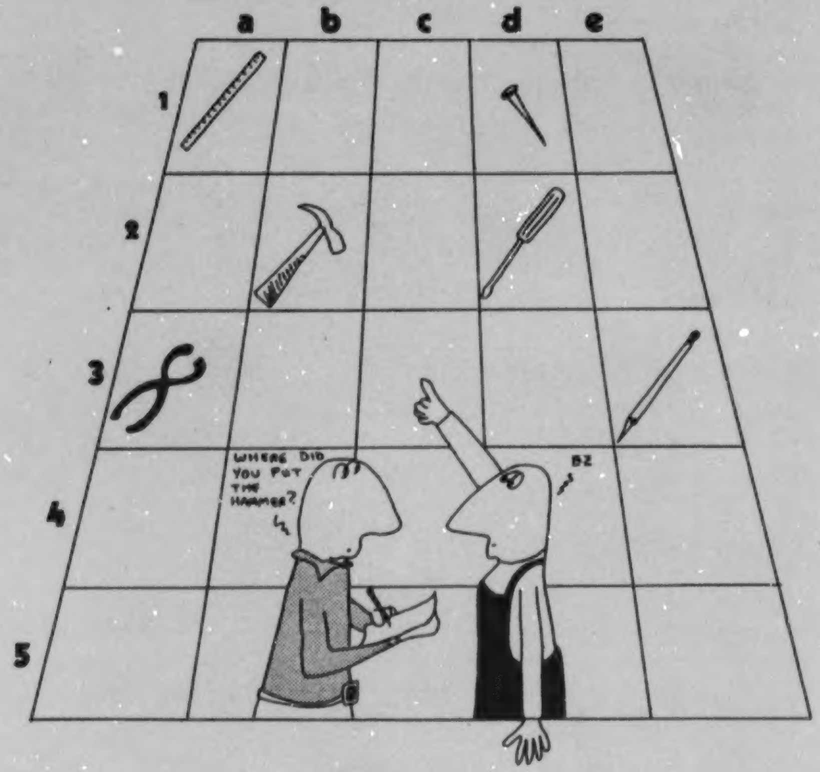


28 Finding Electrical Connections

Planning

Lesson 29
A Floor Plan

Students learn to read simple floor plans of their classroom and then make and use a coded grid system to indicate locations. These skills build a foundation for reading floor plans in office buildings, using subway guides and understanding street maps.


a
b
c
d
e
1
2
3
4
5
WHERE DID YOU PUT THE HAMMER?
B2

Purposes

- To make and use a floor plan.
- To measure and layout a grid on the floor.
- To label a grid with alphanumeric codes.
- To use codes and common prepositions to describe location.
- To clarify whether an instruction is right or wrong.

29 A Floor Plan

Tools and Materials

tape measure, metric	2 per class
scissors	1 per class
pencil sharpener	1 per class
assorted tools	
screwdriver	1 per class
wire cutter	1 per class
straight edge	1 per class
razor knife	1 per class
hammer	1 per class
handsaw	1 per class
pencil	1 each
eraser	1 each
thick string	24 meters
chalk	1 box per class
masking tape	1 roll per class
set of letter flashcards (A-F)	1 per class
set of number flashcards (1-6)	1 per class
Floor Plan "A"*	1 each
Floor Plan Code Form*	1 each

*preparation needed before class.

Language

Where is the front of the room?	
Here, right?	Right. No, that's wrong.
Where is the ruler? was	In A1.
Is it in A3? Was	Yes. No, A1.

A

Where did you put the ruler?	In square A3.
Where can I get a ruler?	Go to A3. I don't know. Ask (John).

B

front
back
middle
corner
right side
left side

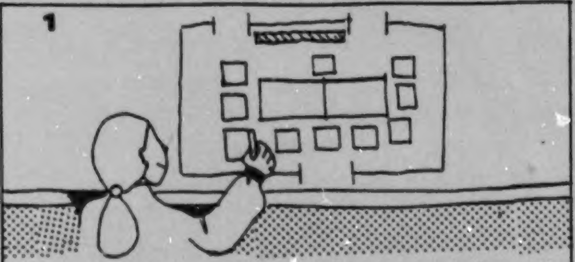
ruler
pencil
tape
hammer
saw

A1 - E6
1 - 300

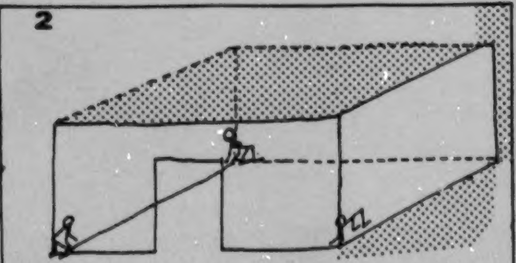
CM

29 A Floor Plan

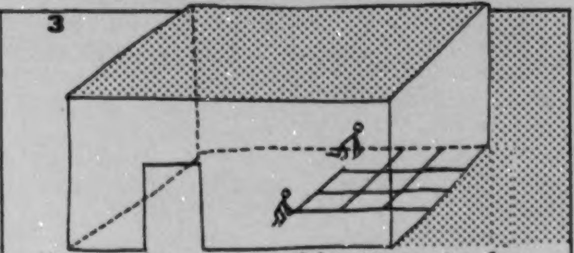
Activity



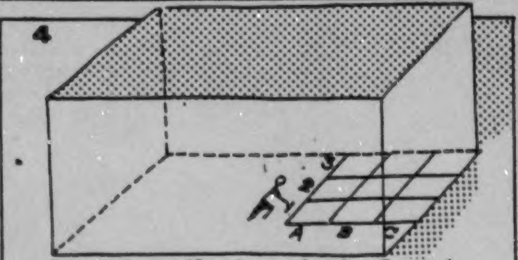
Draw a map of your classroom, locating and labeling key objects such as doors, windows, tables and chairs.



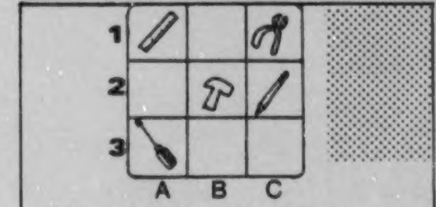
Measure the length and width of the room and fill in the measurements.



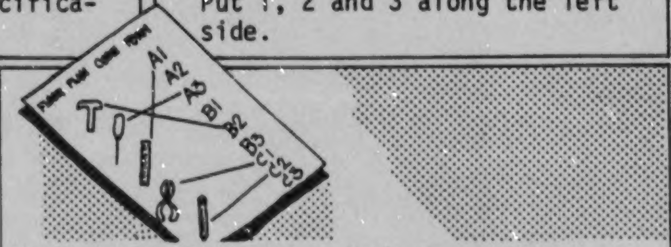
Use string and masking tape to lay out a grid on one side of the classroom floor. Follow the specifications on Floor Plan A.



Position flashcards A, B and C along the bottom of the grid. Put 1, 2 and 3 along the left side.



Place tools inside the grid.



Look at the Floor Plan Code Form. Draw a line from the picture of each tool to its coded location.

Culture

A supervisor is talking to you, right? She's waiting for signals from you--signals that let her know if you're following what she's saying, you know? Maybe she's expecting a nod of the head or a frown or some kind of confused look, right? uh...

What clues do your students give to show agreement, understanding and lack of understanding?

29 A Floor Plan

Notes

Activity

After the floor plan of the classroom has been drawn on the blackboard (Step 1) check students' understanding. Have one person point to a spot on the floor plan (e.g. the front, back or right side of the room). Have a second student go to that spot in the classroom.

A grid with more squares can be made by drawing lines in between each line of the 3 by 3 grid. The grid then becomes 6 by 6 and is labelled A-F and 1-6.

Some teachers like to do this activity out of doors in an empty field or backyard. Or, if space is limited a smaller grid can be laid out on a large table instead of on the floor.

Language

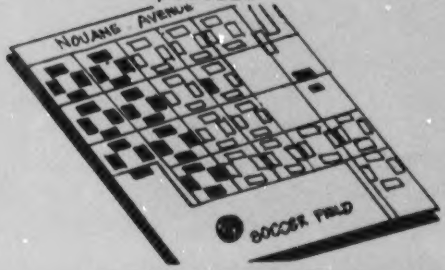
Confirmation. After each new item is placed in the coded grid, ask students to confirm the location by reporting "Right" or "No, that's wrong."

Racing Game. Divide into 2 teams. Call out an alphanumeric code. Have student from each team race to the square on the grid. The student who reaches the square first gets a point for his/her team.

More Alphanumeric Codes. See the Literacy Activities section for more games which emphasize reading codes.

Follow-Up

Your Neighborhood. Bring in or make a map of your neighborhood. Most useful would be a map which has an alphabetic listing of streets and is divided into squares coded using letters and numbers. Help students find their homes and other familiar places.



Make Your Own Map. Label grid paper with letters and numbers similar to those found on the neighborhood map. Have students mark the squares which are important to them and draw the routes they follow from home to school, to work or to other places of interest.

Your Route to the U.S. Bring in a map of the world. Have students trace the route they followed to get from their home country to a country of first asylum or to the U.S.

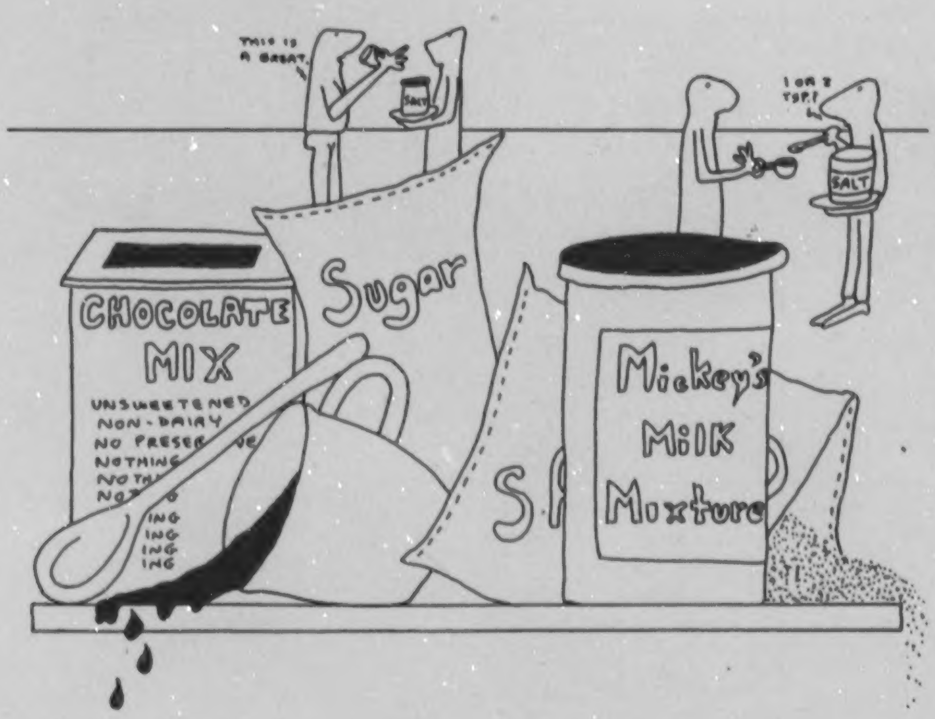
Planning

Planning

Lesson 30

Measuring Volume

Adding too much soap to a washing machine, baking soda to a cake recipe or ingredients to a dye solution can have disastrous consequences. In this lesson students measure salt and water to learn about standard volume units. Then, they follow written recipes to make a chocolate drink.


THIS IS A GREAT.
SALT
1 OR 2 TSP.!
SALT
CHOCOLATE MIX
UNSWEETENED
NON-DAIRY
NO PRESER
NOTHING
ING
ING
ING
ING
Sugar
S
Mickey's Milk Mixture

Purposes

- To become familiar with common kitchen units of measurement
- To recognize and measure fractional parts (½, ¼).
- To follow a simple recipe.
- To recognize equivalent proportions, decrease or increase proportions of ingredients.
- To judge and compare the quantity and quality of a product.

30 Measuring Volume

Tools and Materials

measuring cups (1 set; ¼C., ½C., 1C.)	4 sets per class
measuring spoons (1 set; ¼t., ½t., 1t., 1T.)	4 sets per class
measuring cup (with ¼C. and ½C. marks on the side)	1 per class
quart container	4 per class
1 gallon container (filled with water)	2 per class
2 gallon container (filled with drinking water)	1 per class
10 oz. drinking cups	15 per class
teaspoons (for stirring)	4 per class
gummed labels*	40 per class
plastic bags (marked with ¼t., ½t., 1t., 1T., ¼C., ½C. and 1C. labels)	40 per class
salt	6 pounds
chocolate drink mix, unsweetened+	1 can per class
powdered milk+	1 can per class
sugar+	1 lb. per class
Which Are Equal? Form*	1 each

+ingredients can be used by more than one class.
*preparation required before class.

Language

Read the label.

How much salt do you need? I need ¼ teaspoon.

How many teaspoons? ¼ teaspoon.

Write ¼ teaspoon like this. ¼t.

A

Which recipe has more milk? This one has more milk.

Which recipe tastes better?
the best?

This one.
That one.

B

label
recipe

salt
water
milk
chocolate
sugar

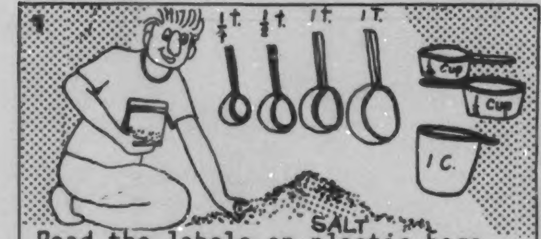
teaspoon
tablespoon
cup
quart

more
the most
less
the least

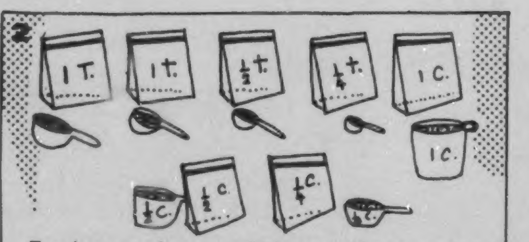
¼t., ½t.,
1t., 1T.,
¼C., ½C.,
1C., 1Qt.

30 Measuring Volume

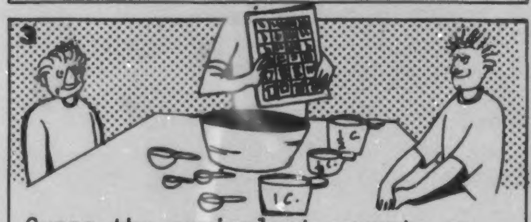
Activity



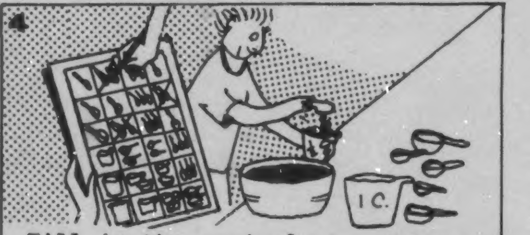
Read the labels on plastic bags. Use measuring spoons and cups to fill them with the right amount of salt.



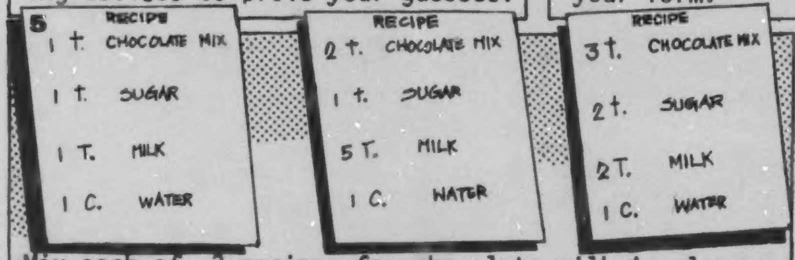
Exchange bags with another group. Check to see if their measurements were accurate.



Guess the equivalent amounts on your form. Use water and measuring devices to prove your guesses.



Fill in the equivalent amounts on your form.



RECIPE
1 t. CHOCOLATE MIX
1 t. SUGAR
1 T. MILK
1 C. WATER

RECIPE
2 t. CHOCOLATE MIX
1 t. SUGAR
5 T. MILK
1 C. WATER

RECIPE
3 t. CHOCOLATE MIX
2 t. SUGAR
2 T. MILK
1 C. WATER

Mix each of 3 recipes for chocolate milk in glasses. Decide which one tastes best.

6 Write a good-tasting recipe for 1 quart of chocolate milk.

Make enough quarts for everyone to enjoy a drink.

Culture

The sizes of customary American measures of volume can be compared by looking at their equivalents in milliliters. (A milliliter is the same size as a one centimeter cube. A liter is 1000 milliliters, or a 10 cm. cube.).

American Unit of Measure	Number of Milliliters
1 teaspoon	5
1 tablespoon	15
1 ounce	30
8 ounces	240
32 ounces	960 (almost 1 liter)

From: Preserving Food by Drying, Peace Corps Manual No. M-10 Peace Corps Information Collection and Exchange office, Washington, DC 20525.

30 Measuring Volume

Notes

Preparation

Measuring Spoons. Test the measuring spoons and cups before buying them. Some sets don't give accurate measurements!

Bags. Heavy weight plastic zip-locked bags (the kind used to pack sandwiches) are best for this lesson. You may be able to find smaller bags (used to hold medicine tablets) for smaller quantities. Mark the bags with gummed labels. Prepare enough bags so that each group uses all the possible combinations of amounts.

Which Are Equal? Prepare 1 form per student (see Appendix: Handouts). Forms with a more complex range of equivalents can be developed for more advanced students.

Read The Recipe. Prepare a chart with the three recipes for chocolate drink described in the lesson. Another simple food or beverage can be substituted for chocolate milk. Decide on 3 recipes which students can try.

Activity

Allow students plenty of time to experiment with the measuring tools by measuring quantities of salt and water. Students will see through direct experience that 2 - ½ units and 4 - ¼ units equal one whole. Avoid descriptions of the meaning of fractions.

For beginners, it's a good idea to make sure the measuring tools have the same labels as those marked on the plastic bags they fill with salt (e.g. ¼t. should be marked on the spoon as well as on the label of the bag).

Waiting until the Which Are Equal? Form is introduced to teach the names of the units of measurement gives students a chance to focus on using the tools first. Introduce the name of each unit of measurement by asking the questions indicated by the form (e.g. "Is one tablespoon equal to three teaspoons?"). Engage students in using the language while they verify their guesses by measuring water.

Teach beginners to read only the abbreviations of the amounts (e.g. t., T., C., Qt.).

Determine more advanced students' understanding of fractions before beginning this activity. You may want to make this lesson more challenging for them by introducing other fractional amounts (e.g. thirds or eighths). Have students label their own bags of salt, rank the bags according to quantity, and describe equivalent amounts.

Notes

Classes of beginning students can make and judge the three chocolate drink recipes as a class. More advanced students can divide into small groups, each preparing and comparing all three recipes. Or, have advanced groups use trial and error to find their own best recipe and write it down.

Language

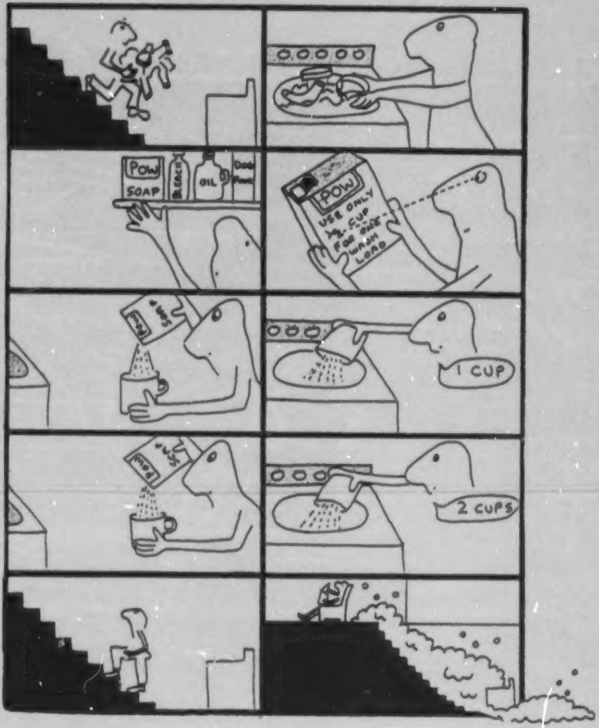
Go Fish. Prepare a set of matching cards, with a picture depicting a unit of measurement on each card. Students ask each other for cards to make pairs; the student who gets most of the pairs wins (see "Go Fish" in the Techniques section of Shifting Gears, Book 1 for more details).

Cookbooks. Bring in some simple cookbooks. Have a student call out a measurement. See which team can find a recipe which contains that measurement in their cookbook.

Picture Story. Have your students "read" and discuss the following story:

- What type of machine is it?
- What happened?
- Why did it happen?
- What must you be able to do to prevent this type of thing from happening? Ans: Read directions.

½ CUP

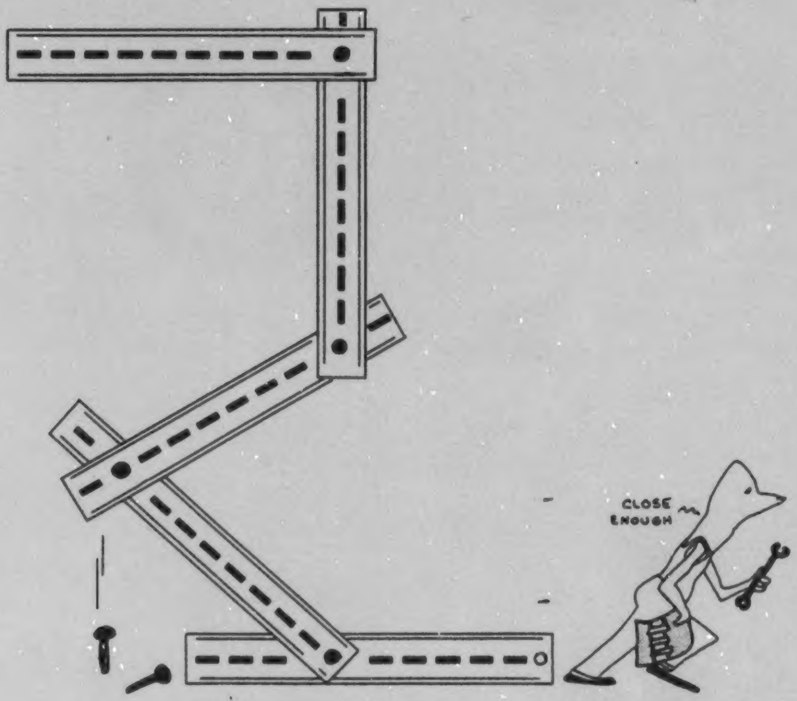


30 Measuring Volume

Planning

Lesson 31
Metal Shelf

Sometimes furniture, toys or appliances purchased in hardware or department stores are not ready-to-use. In this lesson students follow a set of multi-step diagrams to assemble a prefabricated shelf kit.



Purposes

- To assemble a metal shelf by following pictorial diagrams.
- To read and measure length specified in inches.
- To count and sort items according to function and length.
- To attach metal pieces using a wrench, nuts and bolts.
- To describe tasks one is going to do.
- To use "too," "enough" and "not enough" to report insufficient or inappropriate materials.

31 A Metal Shelf

Tools and Materials

tape measure	3 per class
crescent or open-end wrench	6 per class
shelf kit (example kit)*	3 per class
2 ½" x 11½" x 23" plywood pieces	
4 12" metal pieces	
4 24" metal pieces	
4 36" metal pieces	
25 brackets	
75 nuts and bolts	
extra shelf pieces (optional)	
12" metal pieces	4 per class
48" metal pieces	4 per class
instruction diagrams (5 pages)	4 sets per class

*preparation required before class.

Language

Move these.
those.

Wait!

What are you going to do? (I'm going to)
move these.
those.

Where are you going to put that? On the
top shelf.

A

Do you have enough bolts?	I have enough. I don't have enough. I have too many.
Is it long enough? short tight	It's long enough. It's not long enough. It's too long.

B

tape measure
wrench
bolt
nut
shelf
wood
piece

move
measure
stack
join
tighten
loosen

top shelf
bottom shelf
left side
right side

1-90
" (INCH)

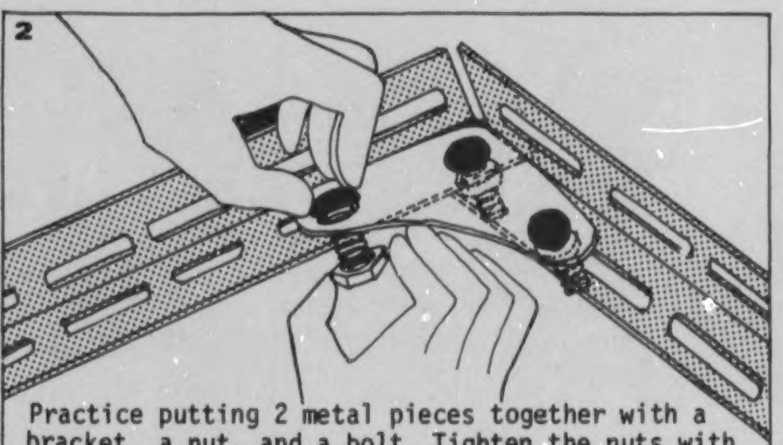
31 A Metal Shelf

Activity

1

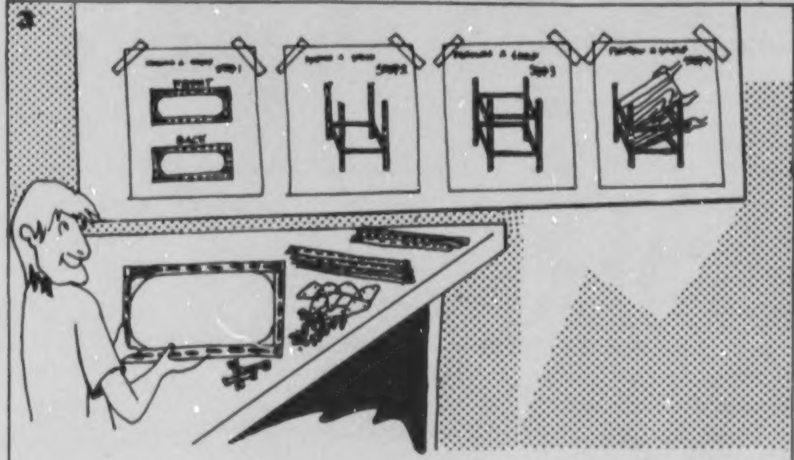
Measure and sort the different parts of the metal shelf kit according to length.

2



Practice putting 2 metal pieces together with a bracket, a nut, and a bolt. Tighten the nuts with your fingers before using the wrench.

3



Follow the diagrams to build the metal shelf.

4

Take apart the metal shelf and sort all the parts according to function.

Culture

In the United States, length is usually measured in feet and inches, however, sometimes conversions need to be made between the Metric and American system. These conversions have been rounded to produce values that are easy to work with and to remember. They are all within 2 percent of the exact values.

Metric		American	American		Metric
1 centimeter	=	4/10 inch	1 inch	=	2.5 centimeters
1 decimeter	=	4 inches	1 foot	=	3 decimeters
1 meter	=	40 inches	1 yard	=	9/10 meter
1 kilometer	=	5/8 mile	1 mile	=	1.6 kilometer

31 A Metal Shelf

Notes

Preparation

Designs. If you are not able to make the same shelf used here--research, design and prepare a similar type of shelf system. Go to an office supply store and see what's available. Or, purchase a prefabricated kit that is complicated enough to meet the criteria of the lesson.

Manual. The "instruction manual" which contains each step needed to complete the shelf can be made from the diagrams in the Appendix: Handouts. Provide 1 per kit.

Activity

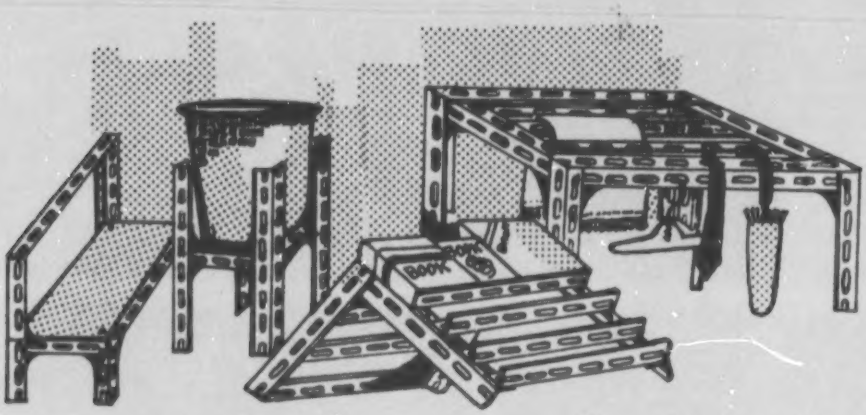
After measuring and sorting all the materials, divide students into 3 groups. Help each group gather the materials they need to make one shelf.

Briefly review the steps involved in making a shelf. Then, show students how to hand tighten the nuts and how to use a wrench. Explain that nuts should be tightened with the wrench only after testing to see that the wooden shelves fit properly (Step 4).

To make this activity more complex, each part of the kit can be labeled with a color, letter or alphanumeric code. Label the instruction diagrams correspondingly.

An option is to have students make their own diagrams of the finished shelf before taking it apart.

If time permits, the students can make something different from the materials (e.g. a chair, a table or a hat rack). They may combine the three kits. Sort the pieces at the end of the lesson to get the correct number of pieces back into each kit.



Notes

For students who are already familiar with metric measurement, short activities comparing metric and American units can be introduced. Focus on approximate equivalents. For example, it's convenient to remember that 5 cm. equals about 2 inches.

Number Line. Look at a tape measure which has both centimeter and inch units. Find points where the inch and centimeter marks line up. Record those points on a number line on the blackboard.

Body Measurements. Measure and record students' height, waist, length, arm length, etc. in both inches and centimeters. (see Numbers Lesson 29, "Your Height" in Shifting Gears, Book 1).

Language

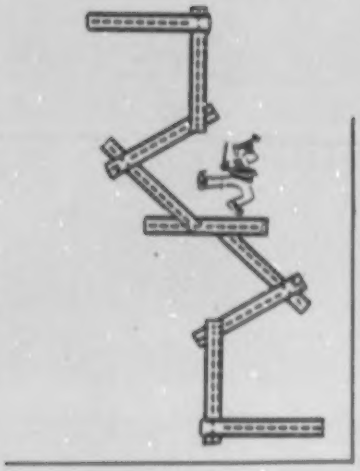
So You're Going to Make a Shelf? After the activity, ask students to describe to a friend how to make a shelf. Refer to the instruction diagrams. Encourage students to use the future tense "going to."

Gonna What? When speaking, many Americans pronounce "going to" as one word, "gonna." Have students practice both ways.

An Incomplete Kit. Give students a shelf kit which contains inappropriate materials. Have them describe the problems (e.g. "These are not long enough." "This is too long" and "I don't have enough bolts.").

31 A Metal Shelf

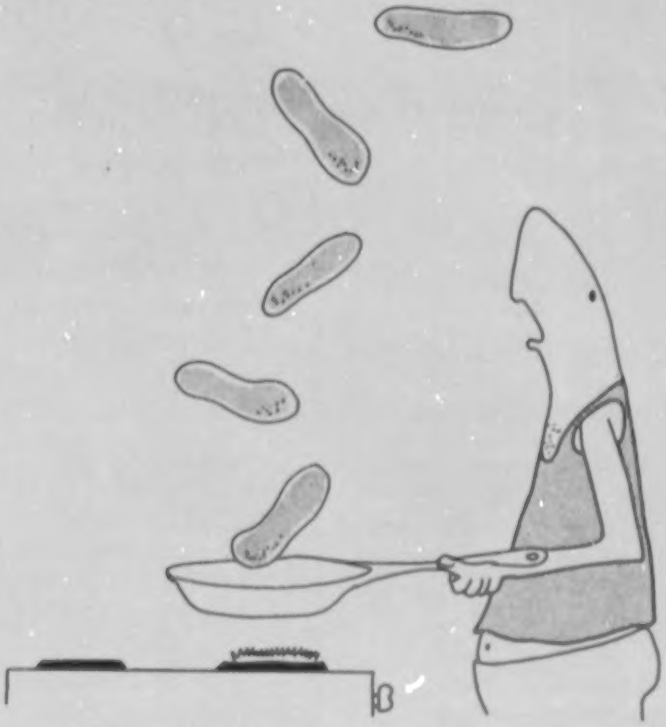
Planning



Lesson 32

Making Pancakes

Whether students end up working in the food service industry or simply preparing meals at home, a variety of skills, safety and sanitation practices enhance the joy of cooking.



Purposes

- To learn how to operate a gas stove.
- To work as a team to organize food production in a kitchen.
- To observe common safety and sanitation practices.
- To follow a recipe to measure volume in cup, teaspoon and tablespoon units.
- To tell if one has the right ingredients and kitchen implements.
- To report what one is going to do.

32 Making Pancakes

Tools and Materials

gas stove	1 per class	flour	4 cups per class
measuring cups	1 set per class	egg	6 per class
measuring spoons	1 set per class	sugar	½C. per class
mixing bowls (3 sizes)	6 per class	oil	½C. per class
mixing spoon	2 per class	baking powder	5T. per class
knife	1 per class	salt	1-2t. per class
egg beater	1 per class	margarine	½C. per class
pan (6-8 inch)	2 per class	powdered milk	½C. per class
spatula	2 per class	(amounts designated for 2 batches of pancakes)	
pot (for boiling water)	1 per class	maple syrup+	1 bottle
one gallon container (filled with drinking water)	1 per class	coffee (optional)+	1 jar
plate	1 each	recipe (on wall chart)*	1 per class
cup	1 each		
fork	1 each		
matches	1 box per class		
dishpan	2 per class		
dish detergent+	1 bottle		
scouring pad	1 per class		
sponge	1 per class		
towel	1 per class		
hot water	to fill pans		

+ingredients can be used by more than 1 class.
*poster prepared before class.

Language

Read the recipe.

What are you going to do now? (I'm going to) read the recipe.

How many cups of flour are you going to use? (I'm going to use) two cups.

A

Is there too much?
little?

Yes, there's too much.
No, there's enough.
It's just right.

B

read the recipe
get the cup
teaspoon
tablespoon
bowl
pan
mix the flour
sugar
salt

cook the pancake

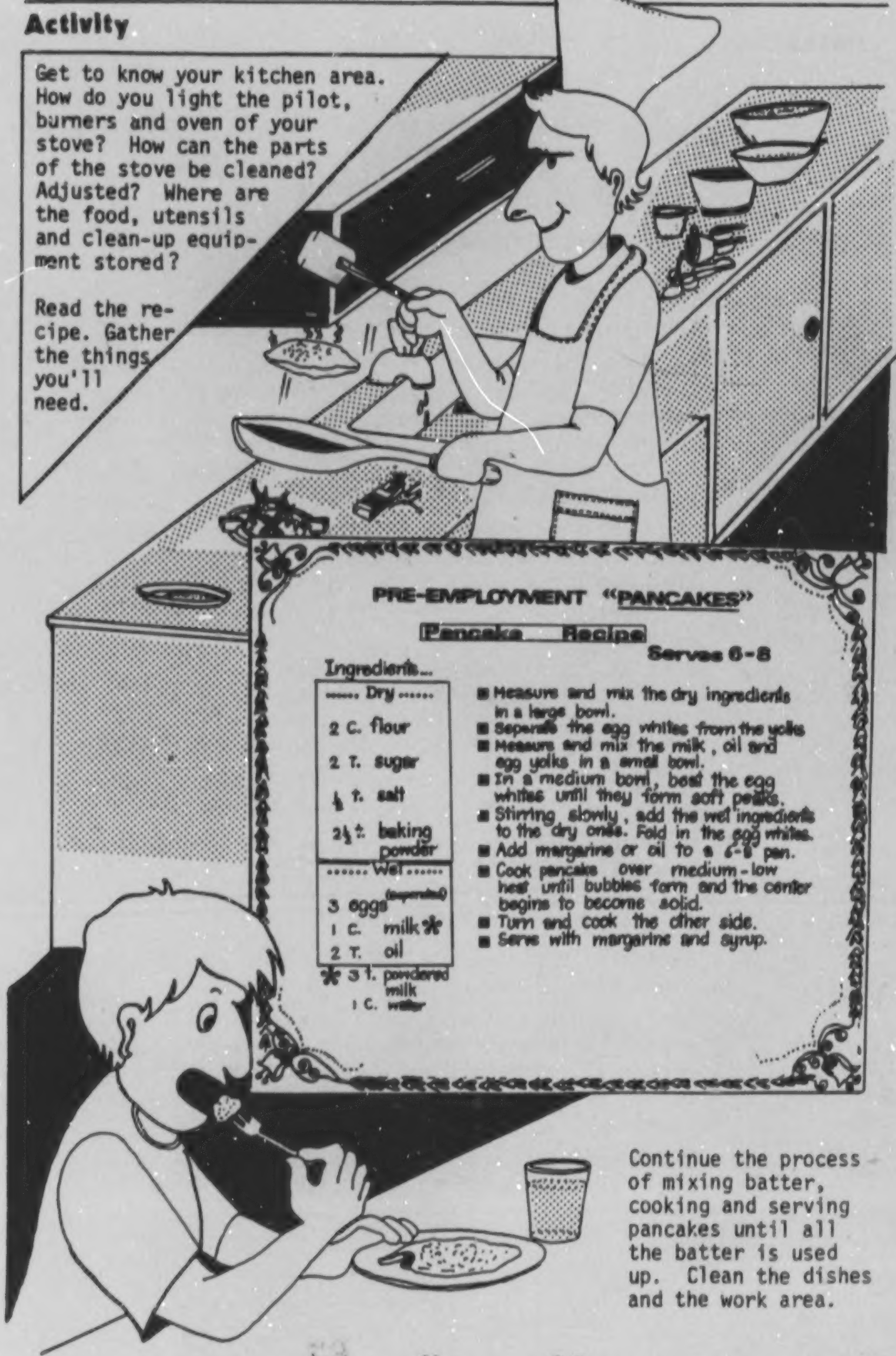
¼t., ½t., 1t., 1T.,
¼C., ½C., 1C.

32 Making Pancakes

Activity

Get to know your kitchen area. How do you light the pilot, burners and oven of your stove? How can the parts of the stove be cleaned? Adjusted? Where are the food, utensils and clean-up equipment stored?

Read the recipe. Gather the things you'll need.



PRE-EMPLOYMENT "PANCAKES"

Pancake Recipe

Serves 6-8

Ingredients...

...... Dry ......
2 C. flour
2 T. sugar
¼ t. salt
2½ t. baking powder

...... Wet ......
3 eggs (separated)
1 C. milk *
2 T. oil

* 3 t. powdered milk
1 C. water

- Measure and mix the dry ingredients in a large bowl.
- Separate the egg whites from the yolks
- Measure and mix the milk, oil and egg yolks in a small bowl.
- In a medium bowl, beat the egg whites until they form soft peaks.
- Stirring slowly, add the wet ingredients to the dry ones. Fold in the egg whites.
- Add margarine or oil to a 6-8" pan.
- Cook pancake over medium-low heat until bubbles form and the center begins to become solid.
- Turn and cook the other side.
- Serve with margarine and syrup.

Continue the process of mixing batter, cooking and serving pancakes until all the batter is used up. Clean the dishes and the work area.

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32 Making Pancakes

Notes

Preparation

The Recipe. Prepare and post a wall chart with the pancake recipe written on it.

Organizing the Kitchen. Involve students in setting up efficient work stations for mixing batter, cooking, making coffee and serving food.

Activity

Introduce students to the safe use of the stove:

Describe *the parts of the stove*, including the top burners, oven and broiler. Name kinds of food which can be cooked in each part. Demonstrate how to adjust the height of the oven racks and the broiler plate, and how to remove the burner grills, oven racks and broiler plate for cleaning.

Show where to find *the pilot light*. Demonstrate its function. Practice lighting the pilot safely. Explain that the pilot light can be turned off when a house is unoccupied for a long period of time, to save on gas bills.

Give students a chance to light *the burners*. Show how this can be done with or without a pilot light. Practice adjusting the flame to different heights. Point out the danger of leaving the burner knobs on when the flame is not lit.

Review the tasks which need to be accomplished:

Read the recipe together. Point out the various food items listed and where to find them. Briefly review units of measurement (e.g. T.= tablespoon, t.= teaspoon, C. = cup) and the fractions ½ and ¼.

Demonstrate how to mix one recipe of the batter and cook a pancake. Show how to prepare coffee.

Divide students into rotating teams, with one team mixing batter, another cooking pancakes and a third preparing coffee and serving pancakes. After one group has eaten their pancakes, they can take over for the "cooks."

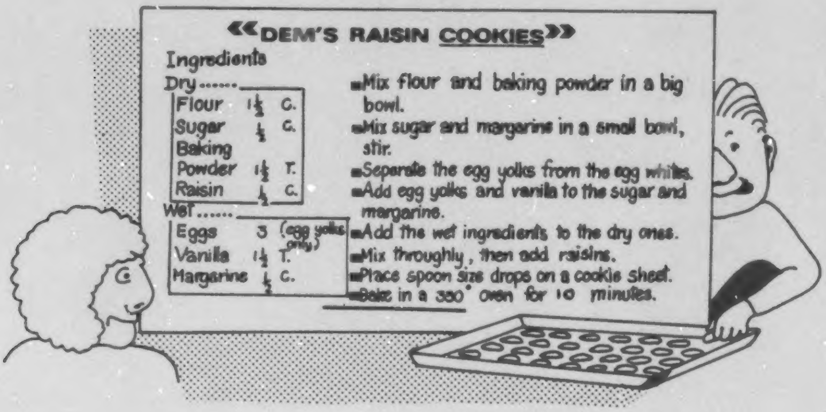
While the last team is eating, explain the cooks will begin heating water to wash dishes.

32 Making Pancakes

Notes

Sanitation is important. Explain that in restaurants employees must often wear aprons, uniforms and/or hair nets and wash their hands before beginning work. Utensils must be sterilized with hot water, and work areas kept clean.

Other simple recipes could be substituted for pancakes. Try this cookie recipe:



«DEM'S RAISIN COOKIES»

Ingredients

Dry......			
Flour	1½	C.	
Sugar	½	C.	
Baking Powder	1½	T.	
Raisin	½	C.	
Wet......			
Eggs	3		(egg yolks only)
Vanila	1½	T.	
Margarine	½	C.	

- Mix flour and baking powder in a big bowl.
- Mix sugar and margarine in a small bowl, stir.
- Separate the egg yolks from the egg whites.
- Add egg yolks and vanila to the sugar and margarine.
- Add the wet ingredients to the dry ones.
- Mix throughly, then add raisins.
- Place spoon size drops on a cookie sheet.
- Bake in a 350° oven for 10 minutes.

Language

Going to What? Give students an instruction, such as "Light the stove." Before they begin the action, tell them to wait. Ask them, "What are you going to do?" Answer:"We're going to light the stove." Repeat this process with each step of the activity.

Coffee Talk. If possible, invite someone who speaks English well to join with the students while they are eating. Ask them to chat with students informally. (The visitor might try asking the students to describe what they are "going to do" that night, when they get to the U.S., when they finish school, etc.)

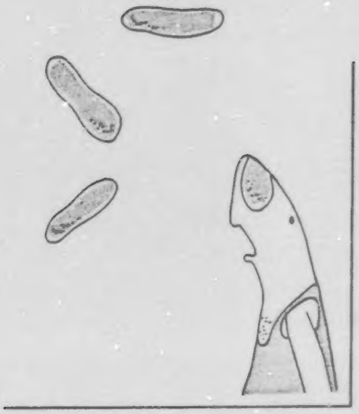
Signs. Post appropriate safety and worksite signs (see Unit 3: Literacy).

Safety

What are some appliances in the home which use gas? How can they be dangerous? What safety precautions can you take, especially if you have small children? Discuss.

32 Making Pancakes

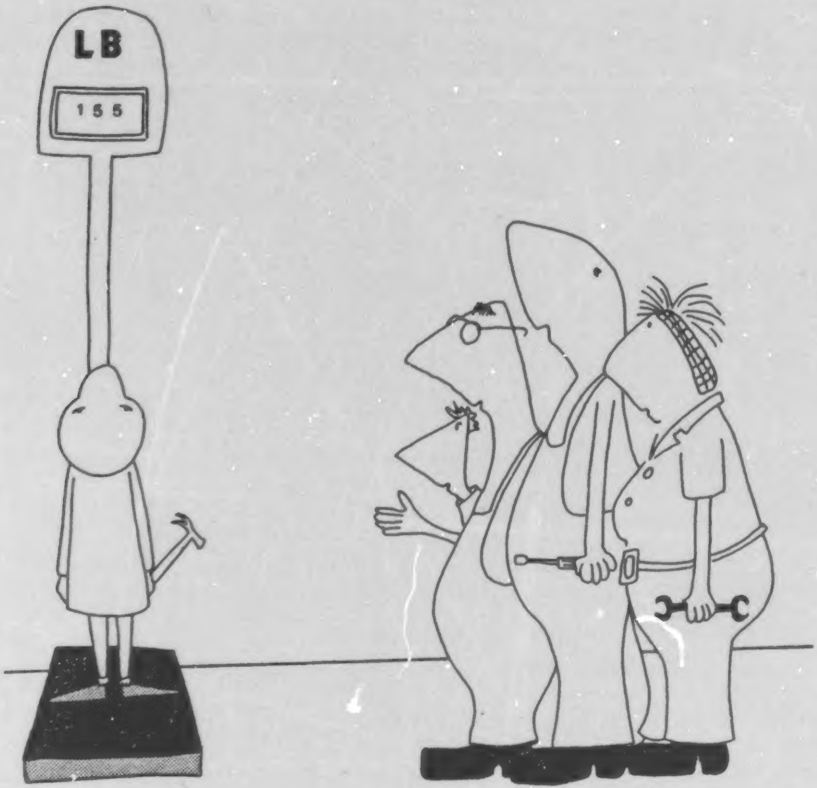
Planning



Lesson 33

Weighing Things

Students first practice weighing a group of tools on a non-calibrated scale. Then, they are introduced to the U.S. system of measuring weights They weigh each tool again, record the weight in pounds and ounces and organize the information on a chart.



Purposes

- To learn to read a scale, calibrated in non-standard units.
- To use scales calibrated in ounces and pounds.
- To read, write and compare weights.
- To estimate the weight of objects.
- To sort, sequence and classify objects by weight.
- To compare the U.S. and metric systems of weight.

33 Weighing Things

Tools and Materials

scales	
range: 0-6 pounds, calibrated in ounces	2 per class
range: 0-1 pound, calibrated in half ounces (postage scale)	2 per class
range: 0-3 kilograms, calibrated in 10 grams	2 per class
faceplate for 0-6 pound scale, calibrated in color coded, unnumbered intervals*	2 per class
colored chalk (optional)	1 box per class
assorted tools:	2 each per class

- screwdriver
- back saw
- crescent wrench
- long-nosed pliers
- wire cutters
- scissors
- rasp
- razor knife
- combination lock
- square
- hand drill
- C-clamp
- hammer
- hand saw
- saber saw

*preparation required before class.

Language

Can you weigh this, please?	Sure. OK.
How much does it weigh?	4 pounds.
How many pounds?	4.
Which one is heavier?	This one. That one.

A

How much do you think it weighs?	I think it weighs 4 pounds and 3 ounces.

B

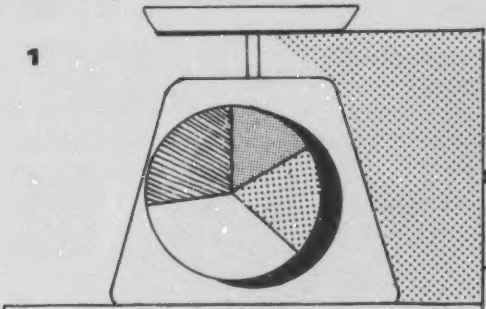
weigh
read
write

pounds
ounces
kilograms

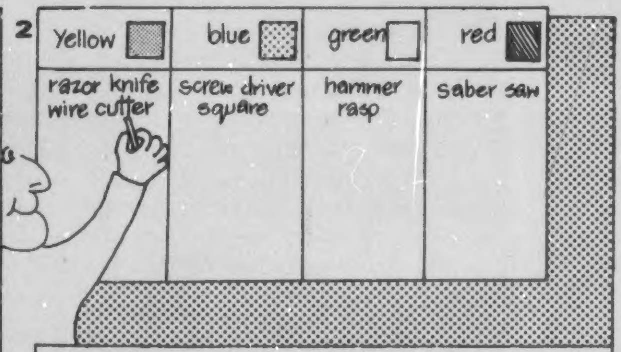
heavier
the heaviest
lighter
the lightest

1-50
KG. (KILOGRAM)
LB. (POUND)
OZ. (OUNCE)

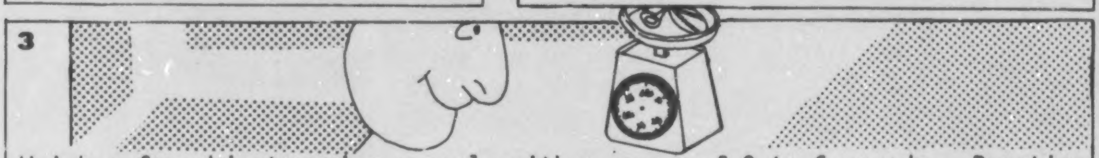
Activity



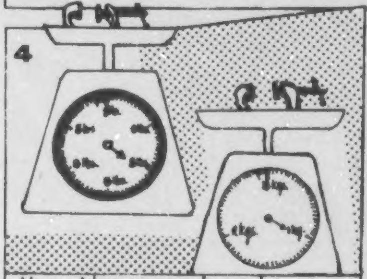
Use the scale marked in colored intervals. Weigh each tool. Sort them according to the interval in which they fall.


2
Yellow ▨
blue ▨
green ☐
red ▨
razor knife
wire cutter
screw driver
square
hammer
rasp
saber saw

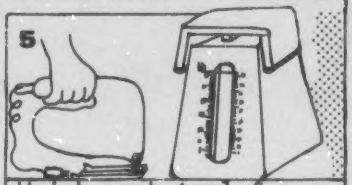
Record the names of the tools in each colored interval on a chart.



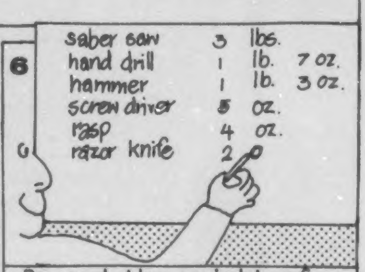
Weigh a few objects using a scale with a range of 0 to 6 pounds. Practice reading the scale to the nearest ounce.



Use the pound and kilogram scales. Discover which is heavier, a pound or a kilogram.



Weigh each tool from Step 1 again. Decide which tools to weigh on the 0 to 6 pound scale, and which to weigh on the 0 to 1 pound scale.


6
saber saw 3 lbs.
hand drill 1 lb. 7 oz.
hammer 1 lb. 3 oz.
screw driver 5 oz.
rasp 4 oz.
razor knife 2

Record the weight of each tool. Arrange them in order from heaviest to the lightest.

Culture

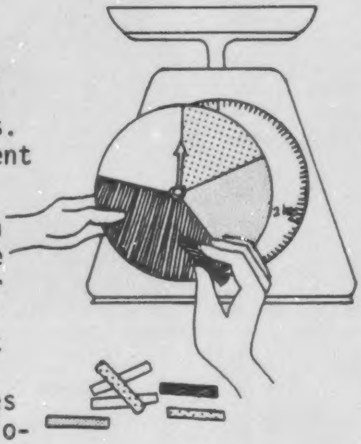
Refugees may eventually use all three kinds of scales described in this lesson. If they work in a kitchen they might weigh portions of food on a scale similar to the color-coded one used in Step 1. In the supermarket they'll discover that they can estimate the cost of fruits and vegetables by using the pound scale provided. In industry, packages may be labeled in kilograms, as well as pounds.

33 Weighing Things

Notes

Preparation

Color-Coded Faceplates. To create a non-calibrated scale, first cut 2 cardboard circles which will fit over the front of the 0-6 pound scale. Decide the number of weight intervals you want (e.g. 0-8 OZ.; 1 LB.; 1-2 LBS.; 2-6 LBS.). Divide each circle into corresponding pie-shaped wedges. Fill in each weight interval with a different color. Attach the faceplate to the scale.



Other Faceplates. If your scales have both pounds and kilograms on the dial, it may be useful to make blank paper inserts to cover up the part of the dial you are not using. On some scales, cover up the kilograms part of the dial, on other scales, cover up the pounds part of the dial. If all your scales have pounds on the dial, you can make a kilogram faceplate. 2.2 pounds equals 1 kilogram.

Activity

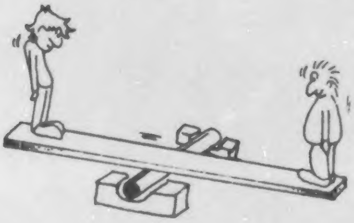
If enough scales are available, have students work in small groups and compare the results on their charts when they are finished.

Ask students to guess the weight of each tool before using the scales. How well can they judge weight by sight?

Race. Have each team add objects to a scale until the total weight of the objects is between two pre-determined weights (e.g. 15 OZ. and 1 LB.). Which teams can reach the designated weight first?

Weigh Beans. Provide small plastic bags labeled with various weights. Have students try to fill the bags to the correct weight by sight; then check their accuracy using the scales. Or, have them try cutting clay to a specified weight; then check to see how well they were able to estimate the correct weight.

A "See-Saw" Scale. Using a plank of wood and a pipe as a fulcrum, construct a "See-Saw" balance for weighing people. Compare students' weights two-by-two until there is enough information to order everyone in the class by weight.



Numbers Lesson 33 ("Your Weight", Shifting Gears, Book 1) is a good follow-up to this lesson. Students weigh themselves on bathroom scales.

Notes

Language

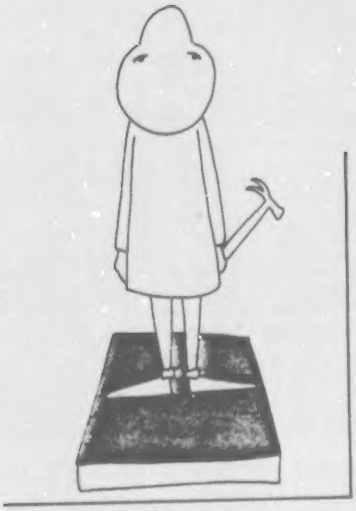
Chart It. Have students call out the weights of tools to a classmate, who writes them on the blackboard. Have lower level students draw a picture of the tool and write the weight and the unit abbreviation (KG., OZ. or LB.) next to the picture. After the chart is completed ask students to give a "spiel" summarizing the information.

Cultural Exploration

This may be the students' first introduction to the U.S. system of weights. Ask them how they weighed things in their home country. Compare their methods and units to those used in the U.S.

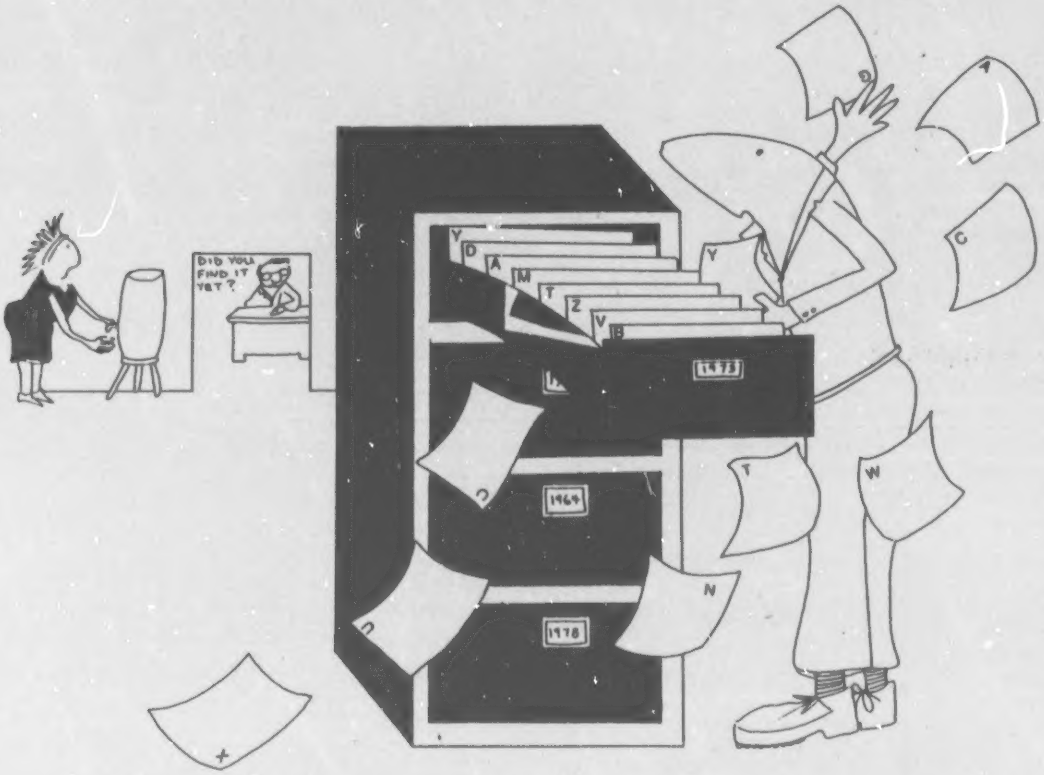
33 Weighing Things

Planning



Lesson 34
Filing by Letter

Entry-level jobs often require employees to locate and retrieve information from alphabetical lists. Workers may need to find their names among a group of work orders, replace their time card alphabetically or organize shipping labels, tool requisitions or laundry lists. In this lesson students use file boxes to sequence and sort letters and names.


DID YOU FIND IT YET?
1969
1978

Purposes

- To review the letters of the alphabet.
- To recognize the letters out of sequence.
- To sequence, file and retrieve items according to alphabetical order.
- To file lists of names by the first letter of the last name.
- To use language which describes the location of items in a sequence (before, after, next).

34 Filing by Letter

Tools and Materials

alphabet flashcards	1 set per pair
scissors	1 per pair
pencil sharpener	1 per class
pencil	1 each
eraser	1 per pair
paper	1 each
file box*	1 per pair
15 small papers each with the name of a student, last name first*	1 set per file box
tool picture cards (optional)*	1 set per file box

*preparation required before class.

Language

Show me letter B.	
What letter comes before B?	A.
Are the letters in order?	Yes, they are. No, they aren't.
Read the last name.	It's Vang.
Read the first letter.	It's V.
File this under V.	

A

Where did you find Vang?	Under V.
What letter did it start with? begin	V.
What letter came first, V or Z?	V came first.

B

letter(s)
name(s)

before
after

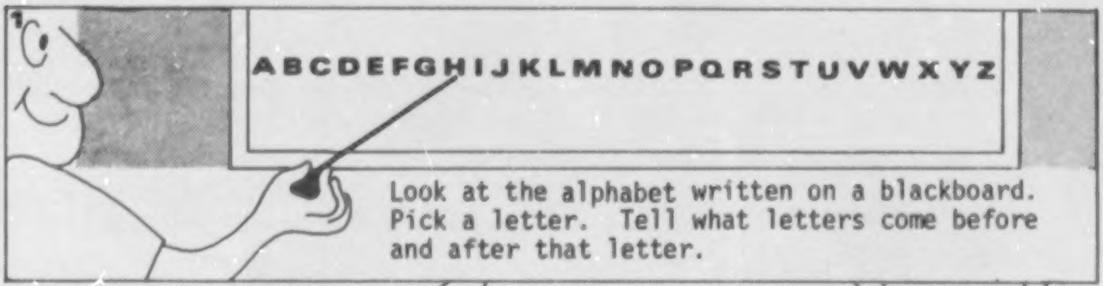
last
first

show me
get me
file
find
write
check

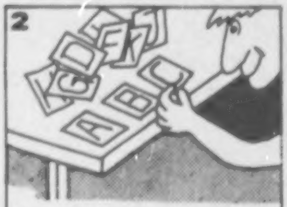
A - Z

34 Filing by Letter

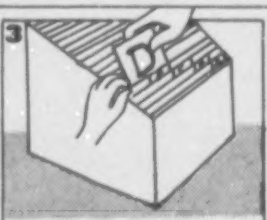
Activity



1 Look at the alphabet written on a blackboard. Pick a letter. Tell what letters come before and after that letter.

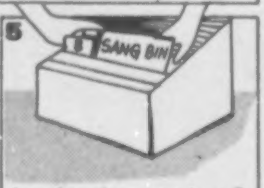


2 Put a set of alphabet cards in order. Recheck the sequence.



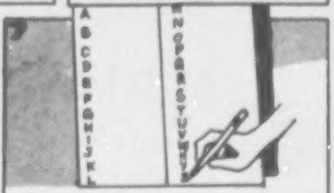
3 File each alphabet card in the proper spot in a file box.

4 Listen as someone calls out a letter of the alphabet. Take the letter out of your file box as quickly as you can.



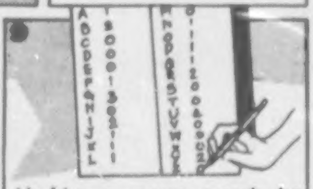
5 Look at a set of papers, each one containing a classmate's name. File the paper by the last name.

6 Exchange your box for another one.


7
A B C D E F G H I J K L
M N O P Q R S T U V W X Y Z

7 Make a form by writing the alphabet down the left side of a paper.

8 Record the number of papers found under each letter in the file box on your form.



9 Write a zero next to letters for which there are no papers in the file box.

Culture

In some countries, the last or family name appears first followed by the first name. On arrival in the U.S., some people may retain the order of their names--others may reverse the order. Employers in the U.S. are concerned that refugee employees use the same names and be consistent in the designation of first and last. Inconsistency will affect filing systems, schedules, checks for salary and the use of time cards.

34 Filing by Letter

Notes

Preparation

File Boxes. Inexpensive file boxes can be made by pasting cardboard tabs on 3" x 5" index cards and placing them in rectangular plastic containers.

Name Cards. Prior to this lesson, have students from several classes print their names (last name first) on 3" x 5" pieces of paper. Sort these into sets with 15 papers in each set. Provide 1 set per file box, to use during Step 5.

Tool Picture Cards. For advanced classes, prepare one set of tool picture cards per file box, using the samples in the Appendix: Handouts. Have students file them after they complete Step 9.

Activity

Before they can do this activity, students must know the alphabet. Spend time during classes prior to this one completing short reviews. By calling the roll in alphabetical order or putting the first letters of names and sight words on the blackboard students can participate in brief daily practices. See the Literacy Activities section for other suggestions.

It is possible students will find two cards which have the same last name. If so, instruct them to file by the first name. For example Vang, Pao would come before Vang, Yer.

Beginning students only need to identify the first letter of each name. Advanced students can be shown how to file names which start with the same letter (e.g. Lee comes before Lor). Use names of tools (e.g. pencil, paper, plug, pliers) as other examples.

As a variation, ask advanced students to file other items (e.g. names of states, book titles, or other sight words). Have races to see which group can retrieve items from the file box first.

Language

The meaning of "before" and "after" can be taught by giving each student one alphabet card. Have each person tell whose letters come before his or her own. As students return from a break ask each one to tell who came into the room before and after he/she did.

Noun or Verb? Sometimes the same word can be used to refer to an action (e.g. "File the paper.") and an object (e.g. "This is a business file."). Can students think of other examples (e.g. nail, screw, drill, type, cut)?

34 Filing by Letter

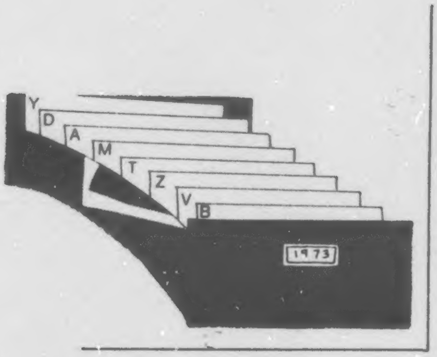
Notes

Cultural Exploration

Role Play. Assign a clerk to each of five counters labeled A-E, F-K, L-P, Q-T, and U-Z. Have the remaining students apply for a driver's license by going to the correct counter for an application form and returning when it is filled out.

34 Filing by Letter

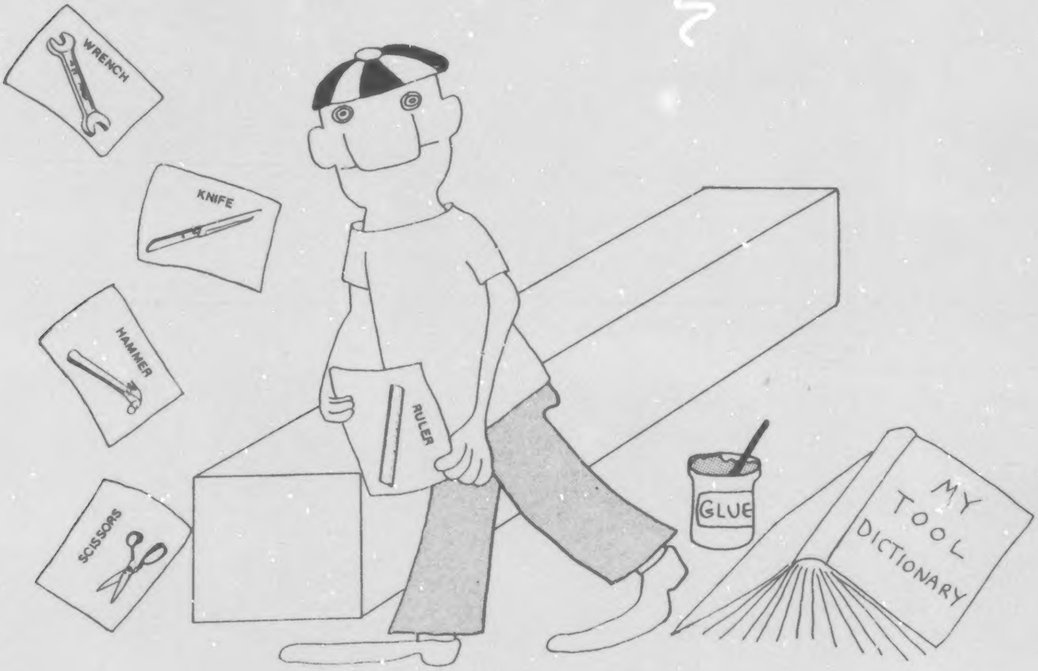
Planning


Y
D
A
M
T
Z
V
B
1973

Lesson 35

Making a Dictionary

In this lesson, each student produces a picture dictionary of tools used in previous classes. On the first day students alphabetize tool pictures and paste them onto pages. On the second day they number the pages and bind them into a book.



Purposes

- To make and use a book which contains alphabetically listed contents, numbered pages, a title and an author.
- To sequence a list of sight words according to the first letter of the word.
- To sequence words according to the second letter when the first letter is the same.
- To review the names of tools used in previous classes.
- To locate words in a dictionary.

35 Making a Dictionary

Tools and Materials

ruler	1 each
scissors	1 each
paper punch	1 per class
rubber stamp (numbers 1-9)	1 set per class
ink pad	1 per class
pencil sharpener	1 per class
pencil	1 each
eraser	1 each
glue	2 bottles per class
glue applicator (wooden popsicle stick)	1 each
white paper (letter size)	10 each
file folder (letter size)	1 each
paper fastener	1 each
alphabet cards (optional)	1 per pair
tool pictures*	1 set each
sample dictionary*	1 per class

*preparation required before class.

Language

This is a dictionary.	
What's this word?	It's saw.
What's the first letter?	It's S.
Which word comes before saw?	Razor.
Are the words in order?	Yes, they are. No, they aren't.

A

Did saw come before or after pen?	It came after pen.
Did you write the title on author the cover?	Yes, I did. No, not yet.

B

dictionary
page
picture
tool
word
letter

saw
razor
pen
(assorted tools)

before
after

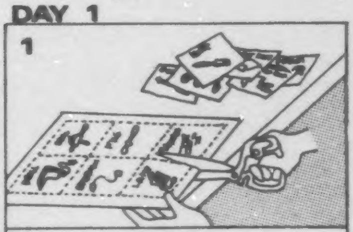
A-Z
1-10

35 Making a Dictionary

Activity

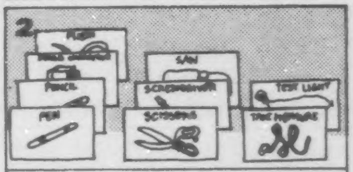
DAY 1

1



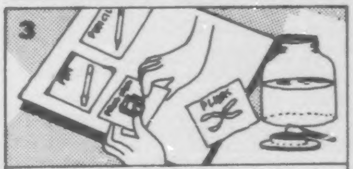
Cut out the tool pictures.
Identify the name of each tool.

2



Identify the first letter of each word.
Put the tool pictures in alphabetical order.

3

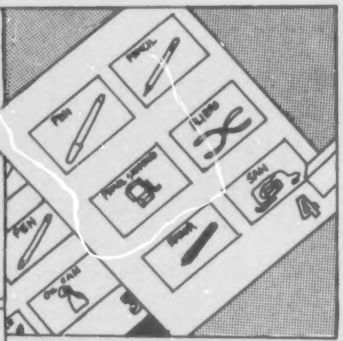


Glue the first 6 pictures on paper. Glue on the remaining pictures, 6 to a page, following an alphabetical sequence.

DAY 2

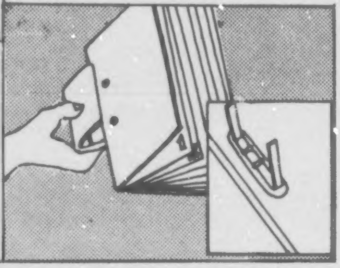
4

Put the pages of your dictionary in alphabetical order. Use a rubber stamp to number each page in the bottom right corner.



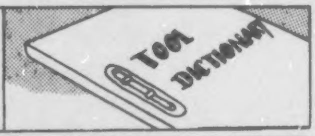
5

Put the pages inside a file folder. Using a hole-punch make holes near the left hand edge of the covers and pages. Attach the covers and pages with a paper fastener.



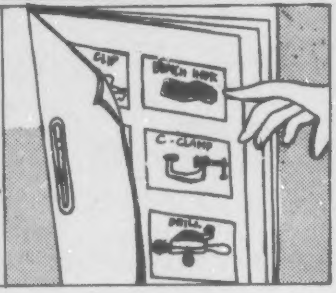
6

Write the title of your book and your name on the front cover.



7

Call out the names of various tools.
Have students find the page numbers on which they're located.



Culture

Workers in the U.S. reflect the culture as a whole. Some are highly educated. Others have only a few years of education. Many are native speakers of English. Some are not. Many can read well. Others are barely literate. To minimize mistakes and insure quality, many industries and manufacturers use pictures to illustrate tools, materials, procedures and safety rules.

35 Making a Dictionary

Notes

Preparation

Tool Pictures. See Appendix: Handouts, for samples.

Dictionary. Prepare a sample dictionary to use as a demonstration model.

Activity

Day 1

- Show students the sample dictionary. Review vocabulary (e.g. picture, word, tool, page, and letter) by asking students to find examples in the dictionary. Engage them in the process of naming the vocabulary while they are cutting out the pictures and gluing them to the pages.
- Have advanced students alphabetize tools by the second letter when the first letter is the same (e.g. bench hook before bucket).

Day 2

- Help students think of a good title for their book. Allow plenty of time for beginners to copy the title and write their names on the front of the books.

Language

Making and using the dictionary can generate a variety of language practices. Here are a few:

Alphabet. Mix up the tool pictures. Race to see who can put them in order first.

Actions. Find all the tools with which you can perform one kind of task (e.g. cut, write, measure and saw).

Tools. Decide on a favorite activity. List the names (and page numbers) of the tools you'll need.

Ordinal Numbers. Ask students to find the first picture on the second page, the third picture on the fourth page, etc.

Cultural Exploration

Demonstration. Bring in one or two standard dictionaries. Discuss their uses.

Notes

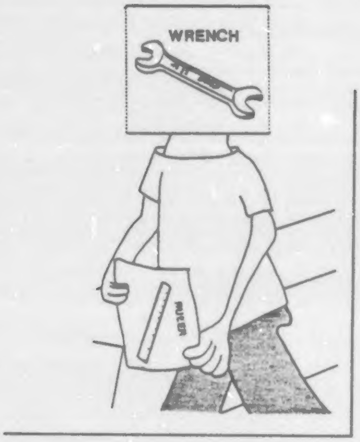
Cultural Exploration (Cont'd)

Pictures. Using native language, discuss ways in which pictures can be useful when shopping. For example, customers sometimes bring in pictures of tools they need, or empty boxes of materials they have run out of, to assist store clerks in finding the correct item.

A Simulation. The Hardware Store Simulation is a good follow-up to this activity. Ask students to keep their dictionaries to use when they are selecting items to buy in the Hardware Store. Use the dictionaries as a teaching aid to practice customer-clerk dialogs before actually implementing the simulation.

35 Making a Dictionary

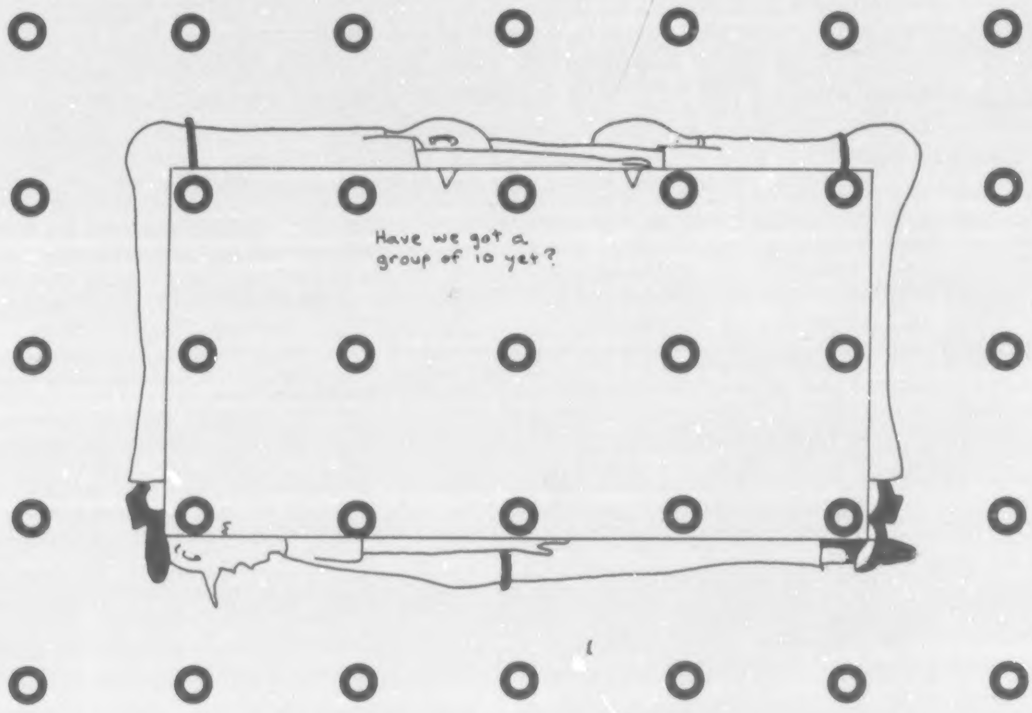
Planning


WRENCH
RULER

Lesson 36

Understanding Place Value

How is the "2" in 24 different from the "2" in 12? How is the "1" in 100 different from the "1" in 15? In this lesson students use a mathboard to learn that the position of a digit in a number tells the value that the digit represents. The idea of place value lays a foundation for understanding basic arithmetic operations, U.S. currency and the metric system.



Purposes

- To count up to 300 spaces on a mathboard.
- To divide the spaces into groups of 100's, 10's and 1's.
- To learn about the Base-10 number system.
- To read and write 2 and 3 digit numbers.
- To answer questions about a completed activity.

36 Understanding Place Value

Tools and Materials

pencil sharpener	1 per class
pencil	1 each
eraser	1 each
rubber bands (3 colors if available)	100 per class
magic marker	2 per class
chart paper	1 per class
mathboard*.	1 each

*preparation required before class.

Language

A

What is the length?	5 squares.
How many squares (do you have) all together?	15 squares.
How many groups of 10 do you have?	1.
How many one's do you have left over?	5.
Write the number.	

B

Have you got 15 squares altogether?	Yes, I've got 15. No, I've got 10.
How many has he got? she	He's got 10. She's got 5.

length
width

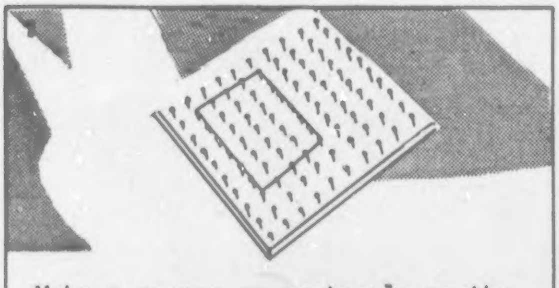
groups of 10
groups of 100
one's

write
read
count

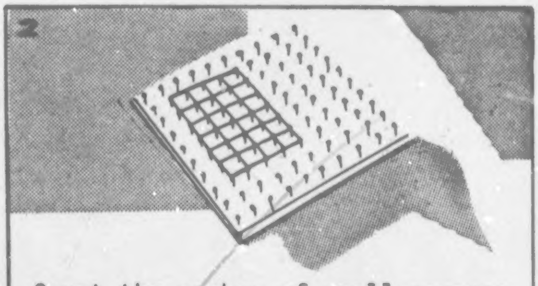
1 - 300

36 Understanding Place Value

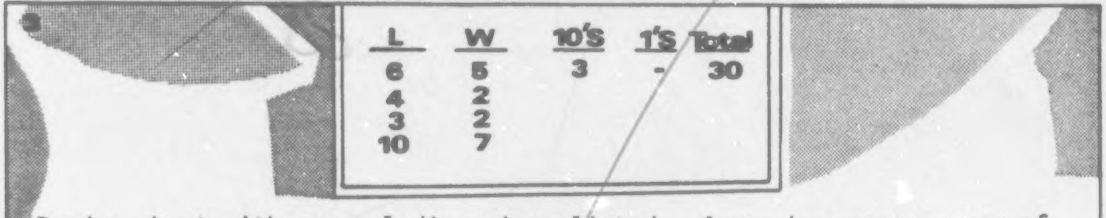
Activity



Make a square or rectangle on the mathboard. Give its dimensions.

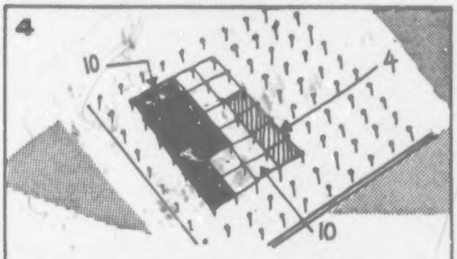


Count the number of small squares inside the shape.

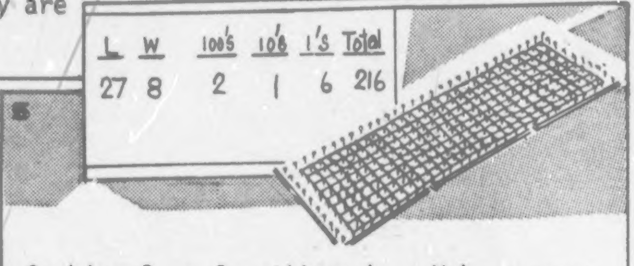


L	W	10's	1's	Total
6	5	3	-	30
4	2			
3	2			
10	7			

Read a chart with several dimensions listed. Guess how many groups of 10 are in each shape. How many are left over. What are the total number of squares?



Prove your guesses using the mathboard.



L	W	100's	10's	1's	Total
27	8	2	1	6	216

Combine 2 or 3 mathboards. Make a very large shape. Count how many groups of 100. How many tens and ones are left over? Read and write the total.

Culture

In some cultures, cowrie shells, beads, gold, salt, etc. have been used as money units. In other cultures, bartering has been used as the means of exchanging goods. Most countries use systems of currency based on 10.

- What system of currency are your students familiar with?

36 Understanding Place Value

Notes

Preparation

Mathboards. See Lesson 27 for information about how to construct a mathboard. If mathboards are unavailable use grid paper.

Rubber bands. Use one color of rubber band to mark off groups of 100, another to designate groups of 10 and a third color to put around the remaining group of one's.

Activity

Have students choose a 2 or 3 digit number and compete to see which group can find the most different kinds of shapes which have that number of squares.

As a follow-up, bring in pennies, dimes and dollar bills. How many groups of $10 are in $35? How many dollars are left over? If there are 12 groups of $10, what number goes in the 100's place? The 10's place? How is the amount written in dollars and cents?

Language

Reading 3 Digits. In standard English, 125 is pronounced one-hundred and twenty-five. Sometimes in informal speech the "and" is deleted. On the job it's likely students may hear other abbreviated forms such as "one twenty-five" or even "one-two-five." The context usually clarifies what is meant. Teach students to use the standard form initially so they are sure they are understood.

Other Games. See Literacy Activities section for more activities which use two and three digit numbers.

Group It. Develop an understanding of the meaning of the word "group." Have different numbers of women stand up. State, "This is a group of 4 women." or "That is a group of 2 women." Add a man to the group. Ask, "Is this a group of 2 women?" Use objects in the classroom to show that a collection of similar things is called a "group."

Have You Got It? On the work site refugees are likely to hear "Have you got a _____?" or "Got a _____?" used interchangeably with the more standard "Do you have a _____?" In formal situations, such as a job interview, the standard form is more acceptable. Most people prefer it when writing. At work, however, refugees usually will find co-workers use informal language. Have them role play short dialogs using "got" and "have got."

Notes

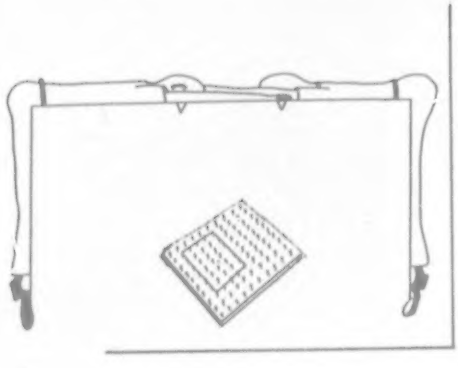
Cultural Exploration

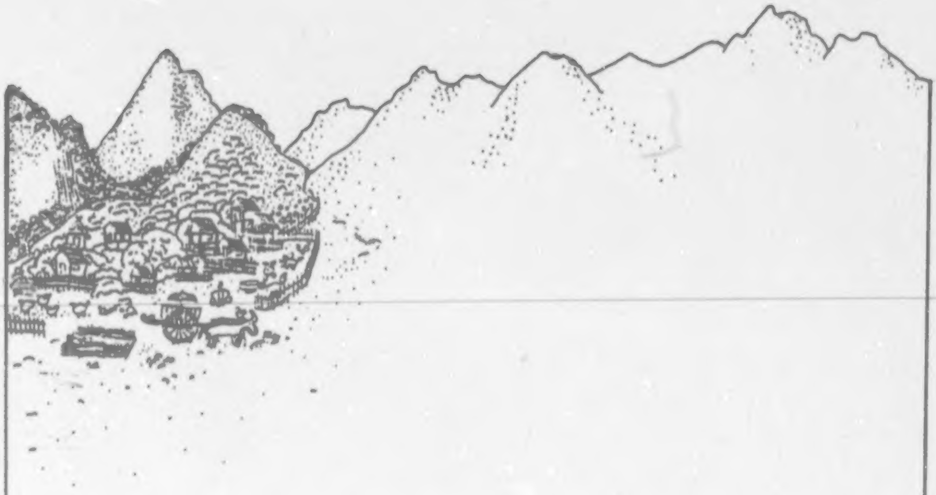
Reflection. Have your students report about the currency used in their country.

- Is it the same or different?
- How is it different?
- Are the denominations of coins and bills the same?

36 Understanding Place Value

Planning





Unit 4

Structures

This is an outline of sentences suggested in language boxes for Lessons 37-48. It can be used as a planning guide to simplify, expand or adapt language.

	A LEVEL	B LEVEL
GIVING AND CLARIFYING INSTRUCTIONS		
Turn the wheel. Verb + Object	What? Where? When? How? Who? question words	Ask her to turn the wheel. Tell her to turn the wheel. What did she say?
	Turn the wheel. The wheel? This wheel? repetition	She said to turn the wheel. reported speech.

YES/NO QUESTIONS

A LEVEL		B LEVEL	
This is a battery, isn't it?	Yes it is. No, it isn't.	Could you fix it?	Yes, I could. No, I couldn't.
You have a wire, don't you?	Yes, I do. No, I don't.	Will it work?	Yes, it will. No, it won't.
You fixed it, didn't you?	Yes, I did. No, I didn't.	If I do this, will it work?	Yes, it will. No, it won't.
Are you fixing it now?	Yes, I am.		
Are you going to fix it?	No, I'm not.		
Did you fix it?	Yes, I did. No, I didn't.		

QUESTION WORDS

A LEVEL		B LEVEL
What did are you going to cut? are you(cutting)?	A block.	I cut a block. I'm going to cut a block. I'm cutting a block.
What length is it? shape size kind	3 inches. Square. Large. Wood.	When did you cut it? will At ______ o'clock.
What is it made of?	Wood.	How did you cut it? will With a saw.
Whose block is it?	It' mine. his. hers. yours.	How long did it take? 10 minutes.
		Why did you cut it? It was too long.

Structures

REQUESTS

	A LEVEL	B LEVEL	
Can I borrow your saw?	Yes, you can. No, you can't. Please return it.	Will you fix it, please?	Sure. Just a minute. Sorry, I can't.

STATEMENTS/EXPLANATIONS

What did you make? I made a ______.
are you going to
are you (doing)?

What did you use? I ______.
are you going to
are you(using)?

How will you make the jig?
did

First, I (______).
Next, I (______).
Then, I (______).

Why did you do it like that?

Because I ______.

COMPARISONS/DESCRIPTIONS

Time	Colors	Shapes	Sizes	States		
today	red	round	small	positive	tight	wet
tomorrow	yellow	circle	medium	negative	loose	dry
yesterday	green	square	large	broken	empty	safe
next	blue	rectangle		fixed	full	dangerous
then	white	triangle		working	stuck	same
later	black	diamond		OK	unstuck	different

VERBS (See Units 1, 2 and 3 for verbs previously introduced).

blow out
burn out
switch
return

keep
borrow
touch
label

spray
press
paint
breathe

mark
straighten
baste
burn
trim

push
pull
shut
lift
tie

tie
bring
say
tell

Everyday English

Use language students will hear on the job. Here are a few suggestions.

GETTING THINGS DONE

Hey, look at that.
Shut it off.
Quick!
Hold on a minute.
Wait a second.
Super!
That's pretty good.
That's the way.
Keep it up.
Ask me if you need help.
This is driving me crazy.
Throw it away.
Cut it out.
Knock it off.
Drop what you're doing.
Knock off work now.
Catch you later.

GOING FURTHER: MAKING EXCUSES

A. I'm sorry I'm late.

B. Why (are you late)?

A. Because I was sick.
My _____ is sick.
My car broke down.
I went to _____.

GOING FURTHER: CALLING IN SICK

A. Hello.

B. Hello, this is (_____).

B. I'm sorry, I can't come to work today.

A. Why? What's wrong.

B. I am sick.
My wife is sick.
My husband is sick.

A. OK. See you tomorrow.

FINDING OUT

Where's the office?
rest room?
lounge?
store room?

It's over there.
It's on the first floor.
It's next to the _____.

How do you spell your name?

It's _____.

What's your address?
social security number?
phone number?
birthdate?

It's _____.

Can you measure?
add?
solder?
use a calculator?
use a drill?

Yes, I can.
No, I can't.

How long did you go to school?

I didn't go to school.
For _____ years.

SOCIALIZING

How do you like the job?
It's _____.

How long have you worked here?

For _____.

What was your job in _____?

I was a farmer.
housewife
soldier
seamstress
(_____).

Where did you learn English?

At _____.

Do you know how to farm?
cook?
sew?
read?
write?

Yes, I do.
No, I don't.

Literacy

NUMBERS AND MEASUREMENTS

NUMBERS - 1 - 300
FRACTIONS - ½, ¼, 5/8
DIMENSIONS - 3 x 2
LENGTH - CM. (CENTIMETER)
" (INCH)
FT. (FOOT, FEET)
YD. (YARD)
VOLUME - t. (TEASPOON)
T. (TABLESPOON)
C. (CUP)
QT. (QUART)
WEIGHT - OZ. (OUNCE)
LB. (POUND)
KG. (KILOGRAM)
TIME - MIN. (MINUTE)
SEC. (SECOND)
1:01 - 12:59
MONEY - $.01 - $10.00

ALPHABET AND CODES

LETTERS - A B C D E F
G H I J K L
M N O P Q R
S T U V W X
Y Z

CODES - A1 1B
BC 2F
C2 3G

FORM LANGUAGE

NAME FIRST M
DATE LAST F
ADDRESS

WORKSITE SIGNS

Make your classroom more like a worksite. Put up these signs for your students to see and refer to daily.

DAYS OF THE WEEK

MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY

BUTTONS, KNOBS AND SWITCHES

ON
OFF
HOT
COLD
OPEN
CLOSED
PUSH
PULL

WARNINGS AND NOTICES

CAUTION
DANGER
POISON
NO SMOKING
NO FOOD
STOP
START
OUT OF ORDER

DOORS

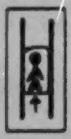
ENTRANCE
EXIT
KEEP OUT
DO NOT ENTER
FIRE ESCAPE
EMERGENCY EXIT
PUSH
PULL
IN
OUT

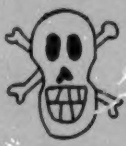
LOCATIONS

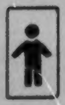
OFFICE
TELEPHONE
TOILET
RESTROOM(S)
MEN
WOMEN
ELEVATOR
STAIRS

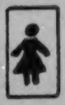
SYMBOLS/ABBREVIATIONS

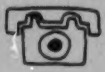
MON FRI
TUE SAT
WED SUN
THUR

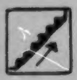


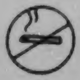


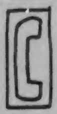




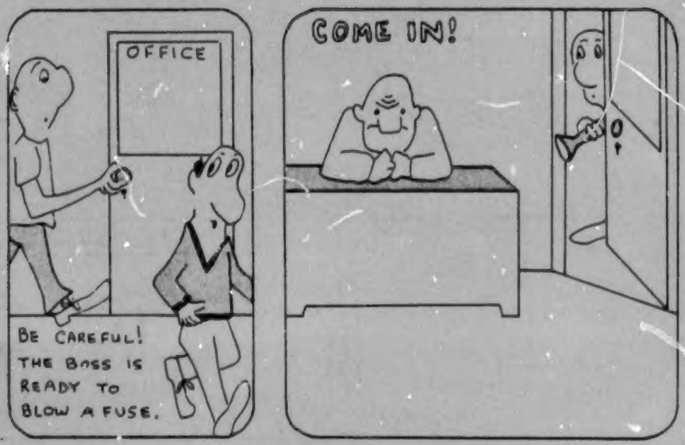








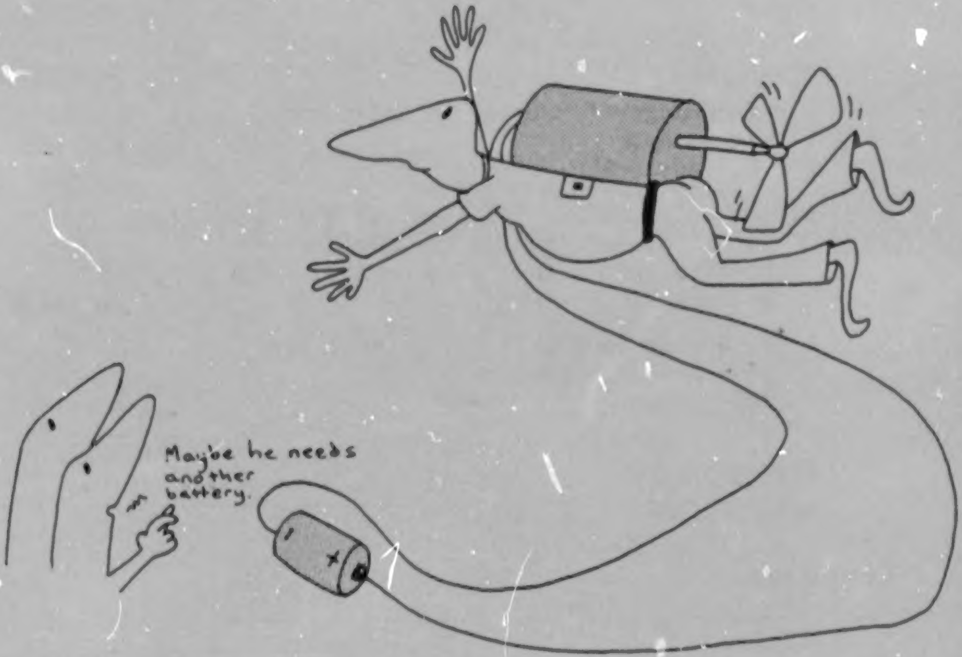
Planning Page


OFFICE
BE CAREFUL! THE BOSS IS READY TO BLOW A FUSE.
COME IN!

Lesson 37

Positive and Negative Terminals

What happens when you make a circuit with a small motor and a battery? Does the motor work differently depending on how it's connected? In this lesson students experiment with simple motorized fans and a special light called an L.E.D. to learn about the positive and negative terminals of a battery.


Maybe he needs another battery.
-
+

Purposes

- To make simple circuits with batteries, small motors and LED's.
- To see how a motor and LED work differently depending on how they are connected to the positive and negative terminals of the battery.
- To identify the positive and negative ends of a battery.
- To practice drawing and interpreting symbolic pictures of simple circuits.
- To confirm a statement by answering "tag" questions.
- To give reasons why one is unable to finish a job.

37 Positive and Negative Terminals

Tools and Materials

pencil sharpener	1 per class
pencil	1 each
colored pencil	
red	1 per pair
black	1 per pair
yellow	1 per pair
eraser	1 each
paper	1 sheet each
candle	1 per pair
match	1 box per class
electric motor fan blade (plastic, to fit motor)	1 per pair
L.E.D. (any color)	1 each
battery, 1.5 volts, "D" size, with a male connector soldered to the positive terminal and a female connector soldered to the negative terminal*	2 per pair
wire (60 cm. long with alligator clips connected to each end)*	
red	2 per pair
black	1 per pair
diagrams of circuits and symbols*	1 set per class

*preparation required before class.

Language

This is a battery, isn't it?	Yes, it is. No, it is a fan.
You drew the battery, didn't you?	Yes, I already did. No, not yet.

A

A: Could you draw the circuit?
B: No, I couldn't.
A: Why not?
B: Because I needed a red pencil.
help.
more time.

B

battery
motor
fan
black wire
red wire
black pencil
red pencil
circuit

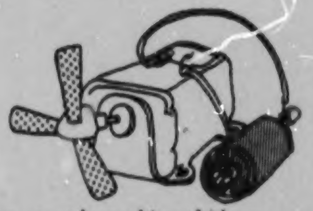
draw/drew
give/gave
connect/connected
switch/switched (the wires)

37 Positive and Negative Terminals

Activity

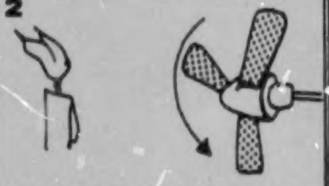
PART 1

1



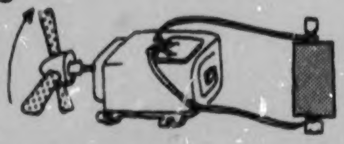
Make a circuit with a battery and a small motorized fan. Use red and black wires.

2



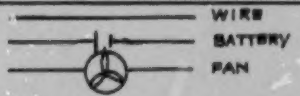
Light the candle. Aim the fan at the flame. Is the flame pulled toward the fan or pushed away from it?

3



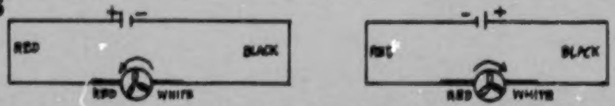
Find a way to make the fan turn in the opposite direction. How does the flame move now?

4



Practice drawing symbols for a wire, a fan and a battery.

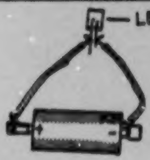
5



Use the symbols to draw 2 diagrams of the circuits built in Step 1 and 3. Use colored pencils to represent the different wires. Indicate the direction the fan turns in each diagram.

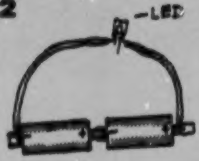
PART 2

1



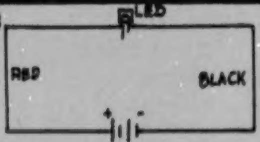
Make a circuit with a battery, wire and an LED. Does it light?

2



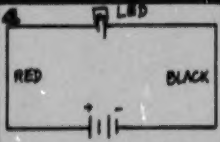
Add one more battery to the circuit. Does it light now?

3



Draw a circuit diagram with an LED, 2 batteries, and wire. Use the symbol shown above for an LED.

4



Reverse the wires connected to the battery terminals. What happens?

Culture

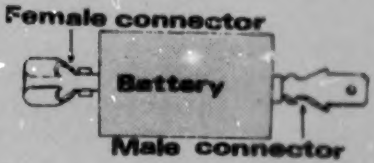
The way you connect a battery to an ordinary light bulb makes no difference. As long as you make a circuit, the bulb lights. For most other battery powered equipment, it does make a difference. Radios and tape recorders won't work if the batteries are put in incorrectly. Indicators and lights on the dashboard of an automobile may be damaged if the battery is connected backwards. It is important to pay attention to the symbols + and - when making electrical connections.

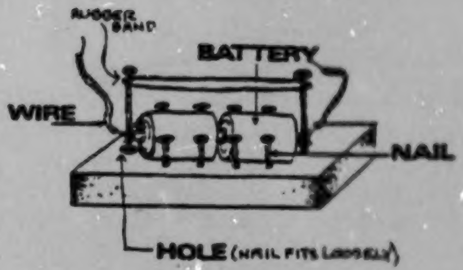
37 Positive and Negative Terminals

Notes

Preparation

Fans. Look for electric motors and small plastic fans in a toy or hobby store (mount them on blocks of wood for easier handling).





Batteries. Standard "D" flashlight batteries can be connected end-to-end by soldering male connectors to the positive terminals and female connectors to the negative terminals. The batteries can then be snapped together in series quickly and easily. If soldering connectors onto the batteries is not feasible, improvise battery holders with wood blocks, nails, wire and rubberbands. The rubberband squeezes the end nails and batteries together. Other rubberbands can be used to hold the batteries down, if necessary.

L.E.D.'s. L.E.D. stands for Light Emitting Diode. A diode is like a one-way gate allowing electric current to pass through it in only one direction. There is only one way to connect an L.E.D. to a battery. You'll have to experiment with the L.E.D.'s you buy to see which "leg" goes to the positive terminal and which "leg" goes to the negative. L.E.D.'s require a certain minimum voltage, commonly 2 volts, to light. By joining two, 1.5 volt batteries in a series (with the + terminal of one battery joined to the - terminal of another) the total voltage will equal 3 volts. L.E.D.'s are often found on battery powered radios, and used to indicate voltage output. They can be purchased in different colors in most electronic hobby shops.

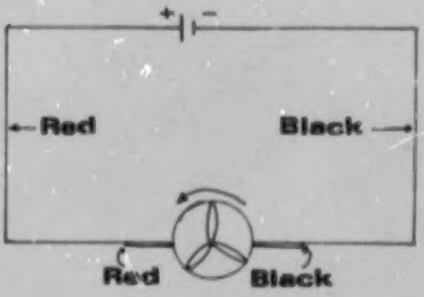
Colored Wires. If you don't have red and black wires, other colors can be substituted, or label the wires + and - with masking tape.

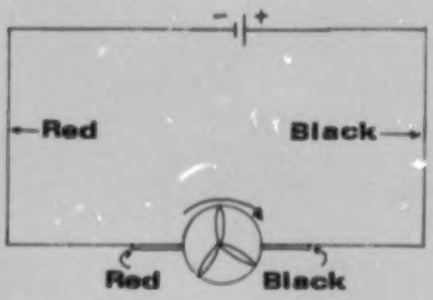
Wire. Cut the wires into 60 cm. lengths and solder alligator clips to each end. Paper clips can be used instead of alligator clips.

Diagrams. Circuit diagrams showing the fans turning in opposite directions can be prepared as a teaching aid.

37 Positive and Negative Terminals

Notes





Activity

Give students a chance to experiment by making different sorts of circuits:

- make a circuit with more than one LED.
- make a circuit which includes a switch and a motor or an LED.
- make a circuit with a fan, a motor and an LED.

Language

Pictures and Symbols. Students may have difficulty understanding electronic symbols. Try making a chart with a picture of the object next to its symbol. Have students practice drawing and naming each symbol. This is a good time to practice tag questions (e.g. "This is a battery, isn't it.").

Could You Do It? Ask each student to make a diagram of a circuit you place on the table. Allow them a specified amount of time (e.g. 5 minutes). Have students tell why they could or could not complete the diagram (e.g. "I needed more time.", "I needed a red pencil." or "I needed help.").

Cultural Exploration

Bring in some battery powered devices such as radios, toys, and flashlights. Practice installing the batteries.

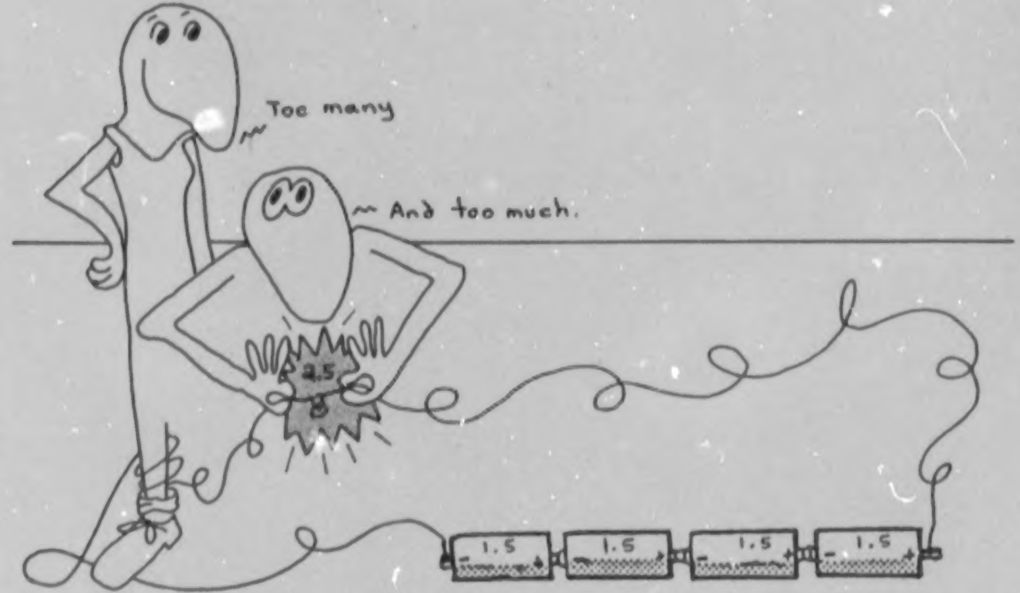
37 Positive and Negative Terminals

Planning

Lesson 38

12 Volt Battery and Bulb

Automobile electrical systems use 12 volt batteries. In this lesson students use an automobile battery to further explore electrical circuits and safety with electricity.



Purposes

- To make a circuit with a bulb and battery and change it by increasing the number of batteries and using various sizes of bulbs.
- To learn about the hazards and safe handling of 12 volt batteries.
- To take apart and draw a 12 volt light bulb.
- To observe the effects of a short circuit with and without a fuse.
- To describe different kinds of batteries, bulbs and wires.

38 12 Volt Battery and Bulb

Tools and Materials

wire cutter	1 per class
razor knife	1 per class
long-nosed pliers	1 per class
soldering iron	1 per class
light bulb	
2.5 V. (4 to reuse, 2 to burn out)	5 per class
6 V.	4 per class
12 V. (4 to reuse, 1 to take apart)	5 per class
light bulb holder (fits 6V. and 12V. bulbs)	8 per class
terminal board (from Lesson 23)	1 per class
battery, 12 V.	1 per class
battery, with male and female connectors*	
1.5 V. "D" cell	32 per class
12 V. battery holder*	1 per class
hose clamp, automobile type(optional)*	2 per class
bell wire with alligator clips at each end, 60 cm. long*	
red	12 per class
black	12 per class
bell wire, 60 cm. long (for demonstrating a short circuit)	1 per class
bell wire, 10 cm. long (for making fuses)	1 per class
straw, paper	1 per class
cloth, synthetic (small piece)	1 per class
paper	1 each

*preparation required before class

Language

You have a black wire, don't you?	Yes, I do. No, I don't.
What kind of wire do you have?	A black wire.
Watch out! Stand back!	
Will it work?	Yes, it will. No, it won't.
Why won't it work?	Because I need more batteries. The bulb burned out.

black
red
1.5 volt
2.5 volt
6 volt
12 volt

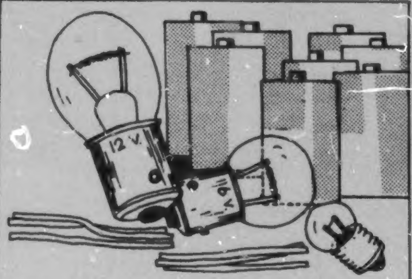
wire
battery
bulb
fuse
circuit

DANGER
CAUTION
HIGH VOLTAGE

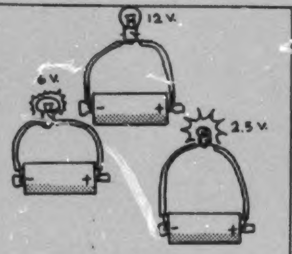
38 12 Volt Battery and Bulb

Activity

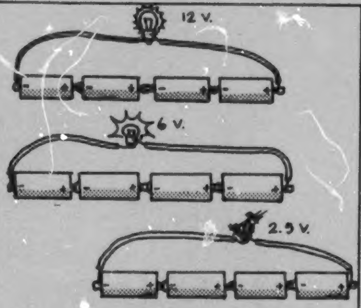
PART 1



Divide into groups. Take a 2.5 V., a 6 V., and a 12 V. light bulb; 8 "D" cell batteries, 3 red wires, and 3 black wires.

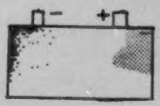


Connect each type of bulb to a battery. Does it light?

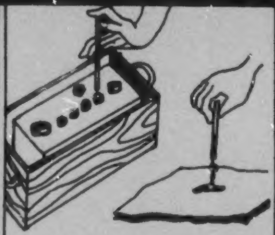


Add batteries to each circuit, one at a time. What happens?

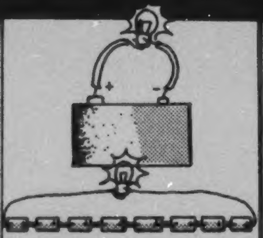
PART 2



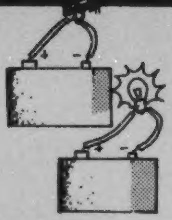
Examine the 12 V. battery. Identify the positive and negative terminals.



Remove some of the fluid from inside the battery with a straw. Drop it on a piece of synthetic cloth. Show how the battery can be handled and carried safely.

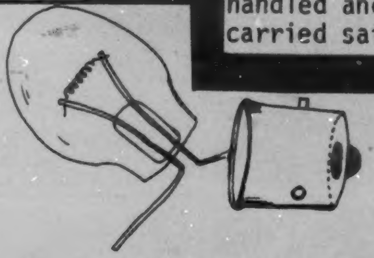


Connect a 12 V. bulb to 8 "D" cell batteries; another to a 12-V. car battery. Compare how brightly the bulbs light up.

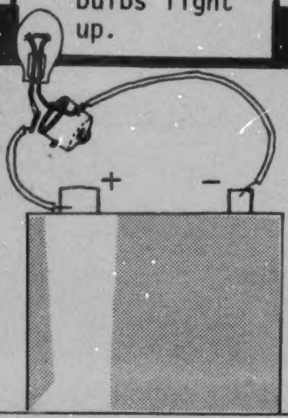


Connect a 2.5 V. bulb to the car battery. What happens? Draw a diagram of the circuit with the 12 V. light bulb.

PART 3



Take apart a 12 V. light bulb. Identify each part. Observe the path of the wires. Draw a picture.



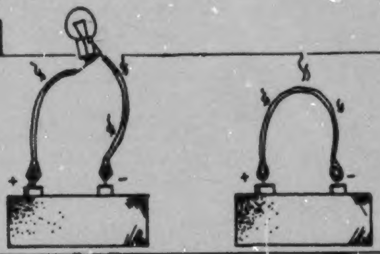
Connect the 12 V. battery to the disassembled bulb so that it lights up. Draw the circuit.

38 12 Volt Battery and Bulb

Activity

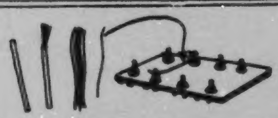
PART 4

1



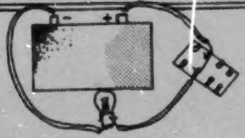
Make a circuit with a 12 V. battery and light bulb. Demonstrate a few ways in which a short circuit can occur.

2



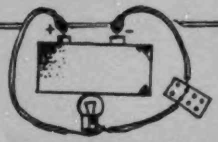
Make a fuse by mounting a single strand of lampcord wire on the terminal board.

3



Put the fuse in the circuit between the positive terminal and the bulb.

4



Make a short circuit.
What happens to the fuse?
Do the wires get hot?
Is the circuit safe? Draw the circuit with a fuse.

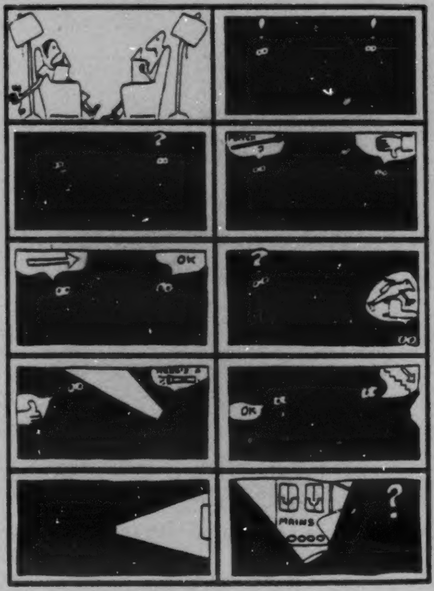
Culture

One single strand of wire is not customarily used as a fuse in America, even though it acts as a fuse since it burns out before the rest of the wire in a circuit gets dangerously hot. It is used for demonstration purposes only. Students should be cautioned not to try to use strands of wire to replace commercial fuses.

American household fuses are screw-in devices with metallic elements inside them which melt more easily than the wiring.

If the electricity goes out in one part of a house, a fuse has probably been blown. Find the fuse which looks burned out. The fuse should be replaced with one of the same amperage.

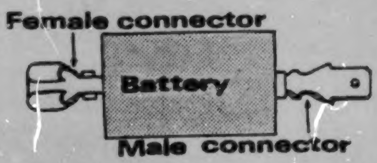
When moving into a new home one should locate the main switch and the fuse box and purchase an extra set of fuses for emergencies.



Notes

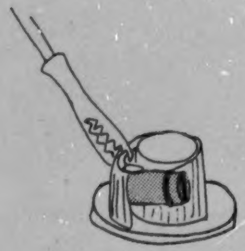
Preparation

Connectors. Male and female connectors should be attached to the 1.5 V. "D" cell batteries (see Lesson 37 for preparation instructions).

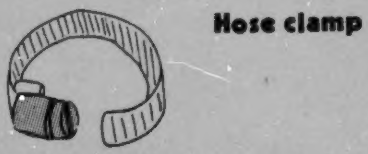


12 V. Battery Holder. good idea to use a heavy plastic or wood box with handles on it to transport and store the 12 V. battery.

Alligator Clips. For tips on how to attach alligator clips to the bell wire, see Lesson 37.



Hose Clamps. Hose clamps, similar to the ones in the illustration, can be purchased in auto supply stores. Attach the clamps around each terminal on the 12 V. battery. This will make it easier to then attach alligator clips to the terminals.



Batteries. Make sure fresh "D" cell batteries are available for this lesson and that the 12 volt car battery is fully charged.

Bulbs. The 12 volt bulbs for this lesson should be small, such as the 3 watt bulbs used in the instrument panel or taillight of a car. The 6 volt bulbs should also be small. They are used on lightweight motorcycles, and in electronic equipment.

Safety. Just one car battery is suggested for this lesson; activities using the car battery are conducted as a demonstration to minimize potential safety hazards.

Activity

Part 1

One objective of Part 1 is for students to understand that when batteries are connected in a series (end-to-end), the voltage produced by the batteries is equal to the sum of their individual voltages. For example, two 1.5 V. batteries in series produce 3 V. Eight 1.5 V. batteries produce 12 V. of electricity.

38 12 Volt Battery and Bulb

Notes

Different light bulbs require different numbers of batteries to make them light. Can your students describe how many batteries are required to light 2.5 V., 6 V. and 12 V. bulbs?

Part 2

Before connecting a bulb to the car battery familiarize students with its safe use:

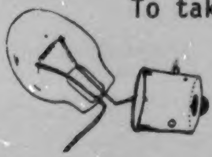
- Identify the positive and negative terminals (Plus and minus signs can be marked on the battery with chalk if the positive and negative terminals are not already clearly identified).
- Use a piece of bell wire to demonstrate what happens when a direct connection is made between the positive and negative terminals. Attach one end of the wire to one terminal. Hold the other end of the wire with long-nosed pliers. Touch the wire to the other terminal. Allow the wire to heat and eventually burn out.
- Next, demonstrate the potential dangers of the fluid inside the battery (sulfuric acid). Remove a little fluid from the battery with a straw and drop it on a piece of synthetic cloth. The acid will burn a hole in it. Avoid getting acid on clothing, skin, or in your eyes. A person who comes in contact with acid should wash with lots of water at once.
- Ask students to suggest ways in which the battery can be carried safely so that the acid doesn't spill. Demonstrate how to use the battery holder.

Next, connect a 12 V. bulb to both kinds of batteries. Eight "D" cell batteries can produce the same voltage as a 12 V. car battery; a small 12 V. light bulb connected to either power source will shine just as brightly. The car battery, however, can also operate things like a horn or a headlight. Its larger size allows it to produce the greater amount of electricity that these things use.

Demonstrate the results of connecting a 2.5 V. bulb to the 12 V. car battery. The filament in a 2.5 V. bulb is not designed to handle 12 V.. It gets too hot, and the bulb burns out.

Part 3

To take apart a 12 V. light bulb:



- Hold the bulb with a pair of long-nosed pliers. Touch a hot soldering iorn to the terminal on the bottom of the bulb, which is made of solder, until it melts away. Then touch the soldering iron to the metal base, until the seal between the base and the glass bulb melts (about 30 seconds).

Notes

- While still hot, carefully pull the bulb out of the base. One wire will pull free; the other will remain connected to the inside of the base.

Part 4

It is customary to use a red wire from the positive terminal of the battery to a fuse or main switch. A black wire is usually attached to the negative terminal. Other wires, such as between the fuses and a bulb, can be any color, but are usually not red. Find other colored wires to use if available, or use lamp-cord wire.

In Part 4, the fuse is placed between the positive terminal and the bulb because that is the usual arrangement in an automotive electrical system. It would work just as well between the negative terminal and the bulb.

You may find that you do not have time to complete Part 4. If so, it can be used as an introduction to Lesson 39.

Language

Description. Have students follow instructions to draw circuits with various numbers of batteries and kinds of bulbs. Then have them describe each diagram.

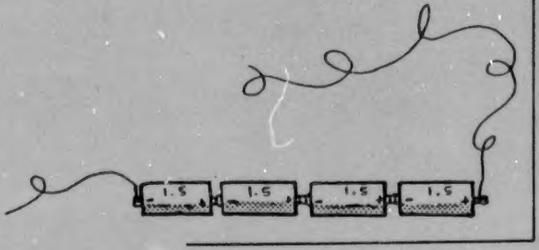
Cultural Exploration.

Picture Story. Have students describe what could have happened in the picture story found in the Culture section, page 104.

Demonstration. Show students various kinds of fuses used in the home and cartridge-type fuses used in automobiles. Point out the different amperage ratings which are commonly available, such as 10A, 15A, 20A and 30A. Explain that some newer houses have circuit breakers instead of fuses. The switch on a circuit breaker can be reset when there is a short circuit or an overload; nothing needs to be replaced.

38 12 Volt Battery and Bulb

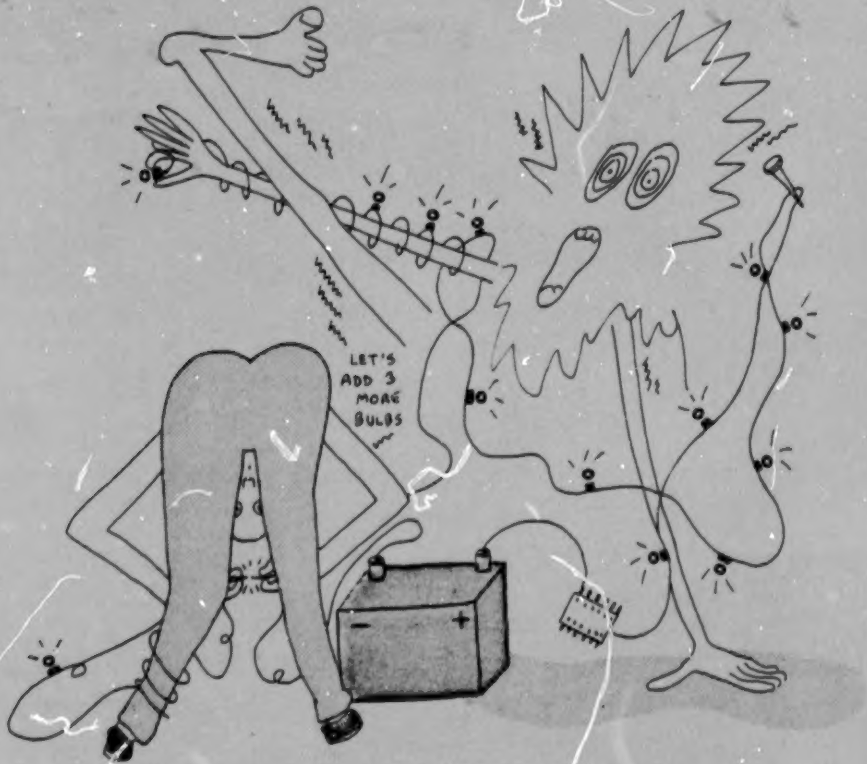
Planning



Lesson 39

Circuit with Many Bulbs

Students follow schematic diagrams to make circuits with fuses. They see the purpose of having a fuse in a circuit. Then, they are introduced to the function of a common ground.



Purposes

- To follow schematic diagrams to construct simple circuits.
- To make a circuit with a fuse.
- To make a circuit with a ground.
- To ask and respond to questions about safety.
- To work with potentially dangerous materials in a safe way.

39 Circuit with Many Bulbs

Tools and Materials

wire cutter	1 per class
razor knife	1 per class
long-nosed pliers	1 per class
metal sheet (30 cm. x 30 cm. for use as a ground)	1 per class
terminal board (from Lesson 23)	1 per class
red bell wire with alligator clip at each end (60 cm.)	6 per class
black bell wire with alligator clip at each end (60 cm.)	6 per class
red wire (heavy gauge) with alligator clip at each end (60 cm.)	1 per class
black wire (heavy gauge) with alligator clip at each end (60 cm.)	1 per class
bell wire (for demonstrating short circuit, 60 cm.)	1 per class
light bulb, 12V. (single filament)	6 per class
light bulb holder (12V.)	6 per class
battery, 12V.	1 per class
12V. battery holder	1 per class

Language

Connect the wires.

Where does the wire go?	It goes here. there.
This is safe, isn't it?	Yes, it is. No, it isn't.
Will it work? get hot? burn out?	Yes, it will. No, it won't.
If I add a bulb, will it burn out?	Yes/No
Why will it burn out?	Because you need a fuse.

wire
bulb
fuse
diagram
ground

connect
add (a bulb)
touch (the wire)
draw

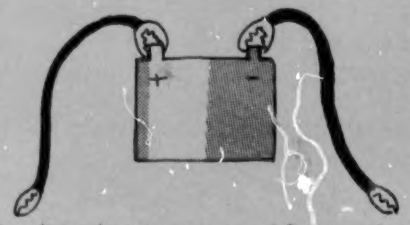
safe
dangerous
positive
negative
hot

DANGER
CAUTION

39 Circuit with Many Bulbs

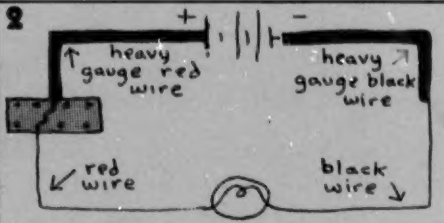
Activity

1



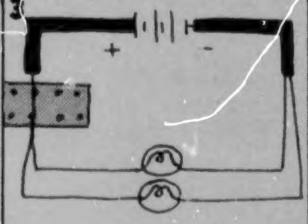
Attach a heavy gauge black wire to the negative terminal of a 12 V. battery; a heavy gauge red wire to the positive terminal.

2



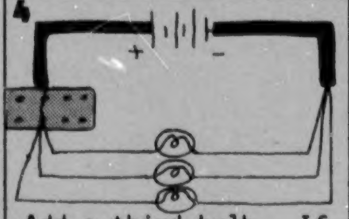
Make a circuit using red and black wires with alligator clips, a terminal board with a fuse, a 12 V. bulb and holder and a 12 V. battery (as in Diagram 1).

3



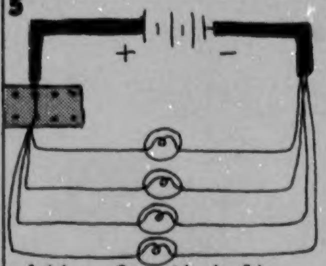
Add another bulb to the circuit. Did the fuse blow out?

4



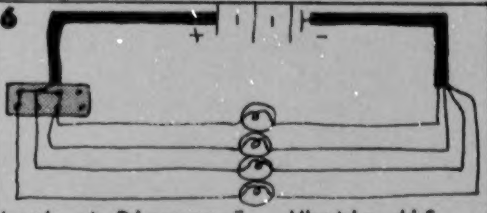
Add a third bulb. If the fuse burns out, make a new one using 2 strands of wire.

5



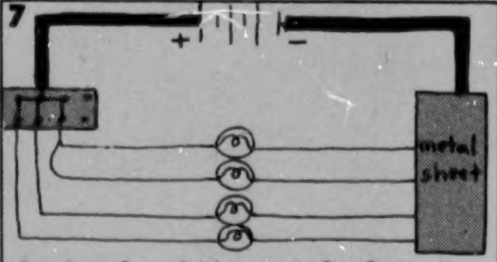
Add a fourth bulb. What happens?

6



Look at Diagram 5. What's different? Make a circuit according to this diagram. Do the fuses burn out? Why not?

7



Optional: Add a metal plate to the circuit to serve as a ground.

Culture

In many homes and apartments the circuits leading to various rooms often have separate fuses. You can still blow a fuse, however, if the wall outlet in any one room is overloaded. Overloading usually occurs when too many appliances are connected to one outlet.

39 Circuit with Many Bulbs

Notes

Preparation

Wire. Heavy gauge wire, such as No. 12 is used in household wiring, and as the main supply wire in a car. It can supply several large bulbs without getting warm. Lamp cord is somewhat thinner, usually No. 18. Wires to individual large bulbs in cars are about this gauge. Bell wire is thinner yet, usually No. 22. It is often used in electronic equipment, and for small bulbs in a car, such as in the instrument panel.

Diagrams. Diagrams of the circuits described in Steps 2-7 can be drawn on the blackboard or on large chart paper. In order not to mix schematic and pictoral diagrams, use the schematic symbol for fuse (•∿•) to replace the picture of the terminal board shown in the activity steps.

Common Ground. Any kind of metal can be used to make a common ground (Step 7). Metal the thickness of tin cans is adequate.

Bulbs. The 12 volt bulbs for this lesson should be quite large, such as the 20 watt bulbs used in the brake lights, directional signals, and back-up lights of a car. Choose a bulb with only one terminal on the bottom and one filament inside the bulb. Bulbs with two terminals on the bottom are likely to cause confusion.

Activity

Before beginning with this lesson, briefly review the safety precautions for handling a 12 volt battery (see Lesson 38).

If enough bulbs are added to a circuit with just one fuse, the current drawn through the circuit will burn out the fuse. Four bulbs may be enough to demonstrate this, but it's possible you will have to add five or six bulbs before the fuse burns out. Be sure your battery is fully charged. This activity will not work with a weak battery.

After demonstrating that too many bulbs cannot be supported by a single fuse, demonstrate a solution to the problem. Add more fuses to the system so that there are only two bulbs per fuse, or even one bulb per fuse (Step 6).

Optional Activity (Step 7)

Clip the heavy black wire from the negative terminal to the metal sheet. The black wires from the bulbs can then be clipped onto the metal sheet at any point. Or, the black wires can be eliminated and the light bulb holders themselves can be attached directly to the metal sheet. In this arrangement, a positive (red) wire from the other side of one of the bulbs makes contact with the metal fuse.

39 Circuit with Many Bulbs

Notes

A large metal toy car, truck, or wagon, or a bicycle can be substituted for the metal sheet. The paint will have to be scraped away wherever a wire is to be attached. This shows how the lights in a car are connected.

To vary this activity, have students experiment to make the circuits without the use of diagrams. Then, have them draw their own diagrams.

Suggestions for other lessons which will familiarize students with the safe maintenance of automobiles are found in the Optional Lessons section of this book. They include an introduction to auto maintenance, auto electricity and changing a tire.

Safety/Cultural Exploration

Common Grounds. The metal sheet in this lesson acts as a common ground. The common ground economizes on the use of many wires. In an automobile the entire chassis acts as a ground since the cable leading from the negative terminal of the car battery is bolted to the engine, which in turn is connected to the chassis.

The chassis of a radio or television and the copper foil on a printed circuit board also act as grounds.

> Look under the hood of a car or inside of a radio. Can you locate the wires leading from the negative and positive terminals of the battery?

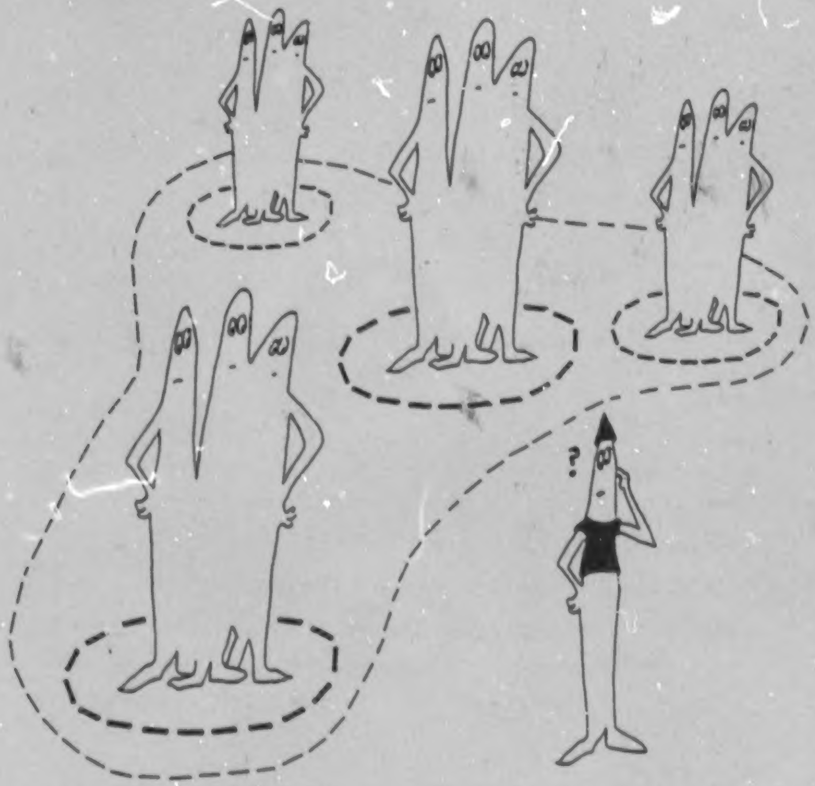
39 Circuit with Many Bulbs

Planning

Lesson 40

Attribute Sets

Each group of students is given a work order to produce part of a set of attribute game pieces. Using construction paper, plastic, cloth and string they measure and cut out pieces of various shapes, sizes and colors. After the pieces have been sorted into sets, students use them to play games of logic.



Purposes

- To follow the specifications on a work order.
- To sort items according to shape, size, color and material.
- To measure in inches and fractions of inches.
- To compare finished products to a model for quality control.
- To follow a set of rules to play a game of logic.

40 Attribute Sets

Tools and Materials

ruler (calibrated in inches)	1 each
compass	1 per pair
scissors	1 each
pencil sharpener	1 per class
pencil	1 each
eraser	1 each
materials for attribute game, 2 sets required:	
construction paper (8½" x 11" sheets, heavy weight, 3 colors)	9 sheets per class
cloth (8½" x 11" pieces, a 4th color)	
plastic (8½" x 11" sheets, light weight, a 5th color)*	2 sheets per class
heavy cord or yarn (5 colors, 10 ft. per color)	50 ft. per class
plastic bag (to hold attribute game)	2 per class
sample attribute game (65 total pieces)*	1 per class
work order forms*	3-6 per class

* preparation required before class.

Language

What size is this piece?	It's small.
What is it made of?	Paper.
How are these pieces the same?	They are the same color and size.
How are they different?	They are different shapes.

A

X: Tell _____ to get me one red paper.

Y: _____ said to get him one red paper.
her

Z: Here you are.
Tell him we're out of red paper.
her
to wait a minute.

B

size
shape
color
length

small
medium
large

a circle
a square
a triangle
a diamond

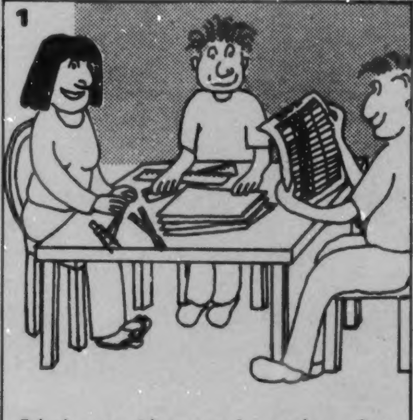
5 colors

paper
cloth
plastic

1-10
" (INCH)
FT. (FEET)

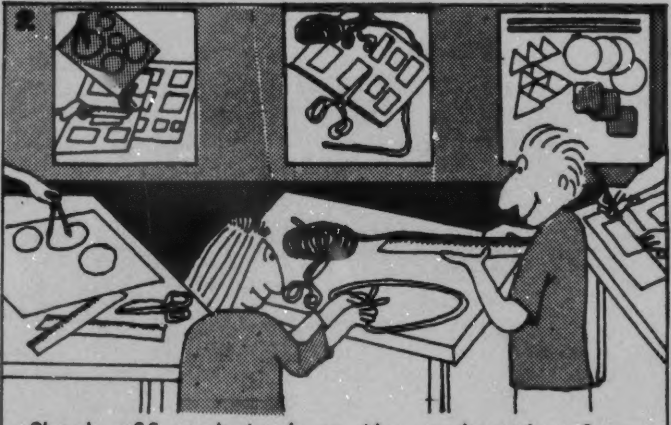
Activity

1



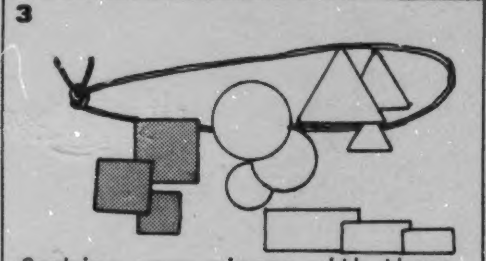
Pick up the work order for your station. Figure out what parts of the attribute set your group is assigned to make. Gather the tools and materials you need and begin.

2



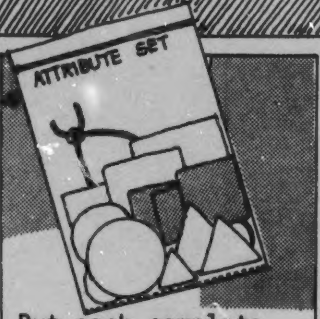
Check off each task on the work order form as you complete it. Inspect the quality of your finished work by comparing it to the sample set. Turn in your work order.

3



Combine your pieces with those made in other work stations.

4



Put each complete set in a bag.

5

Play one or two games using the attribute sets, (see Notes). Can you invent other games?

Culture

Many entry-level jobs involve some sorting activities. Workers in storage areas, supply rooms, shipping and receiving, packing sections and mailrooms all need skill in sorting and classifying. Assemblers also work with a classification system for the materials and parts used. They use the system to find needed materials or to ask for them. Such classification systems are always based on a method of sorting by attributes (e.g. size, shape, color, function, tolerance).

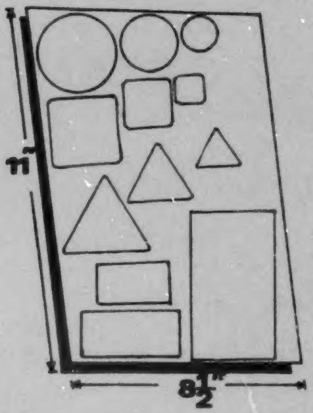
40 Attribute Sets

Notes

Preparation

An Attribute Game Set. Make a sample attribute set to use as a demonstration model.

1. To make one set you need three sheets of heaviest weight construction paper. Each sheet should be a different color (e.g. red, green and blue). Choose an 8½" x 11" piece of cloth which is another color (e.g. yellow) and an 8½" x 11" sheet of plastic a fifth color (e.g. black). The plastic should be lightweight enough to cut with scissors. Check in hobby shops for materials, or buy student report covers which are made of light plastic. You'll also need five four-foot lengths of cards the same colors you used to make the shapes. Get plastic bags in which you can store the set when it's completed.



2. On each 8½" x 11" sheet measure and draw 12 shapes (three sizes each of squares, triangles, diamonds and circles). Suggested sizes to make each shape are listed on the Work Order Form in the Appendix: Handouts.

3, Cut out the shapes. When you finish you should have 60 pieces in five different colors.

4. Tie the ends of each piece of four-foot cord together so they make circles.

5. Put all 65 pieces into a bag.

Work Order Forms. The class will have enough materials to make two complete attribute sets. Decide on a method to divide the tasks so that each work station makes one part of the set. One way is to have each station make all the pieces of a certain color. Another is to have one station make all the circles, another make the squares, etc. Fill out one work order for each station, using the form in the Appendix: Handouts.

Activity

Divide students into work stations. Give each station their work order and allow them to choose the materials they'll need. Encourage them to ask in English if they need assistance.

Notes

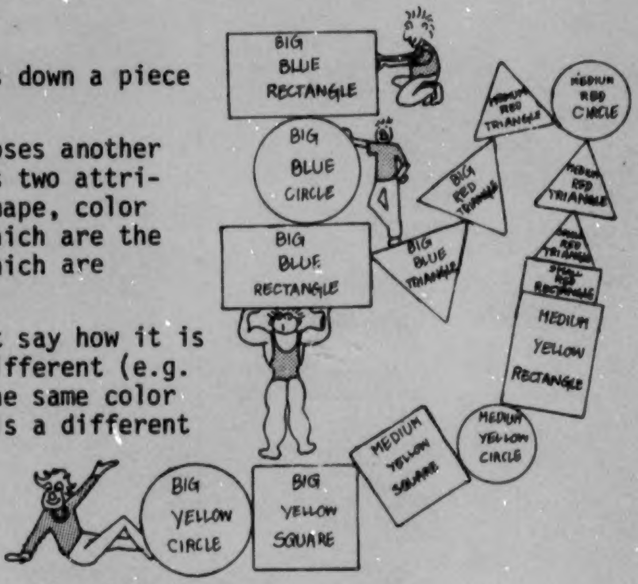
Activity (Cont'd)

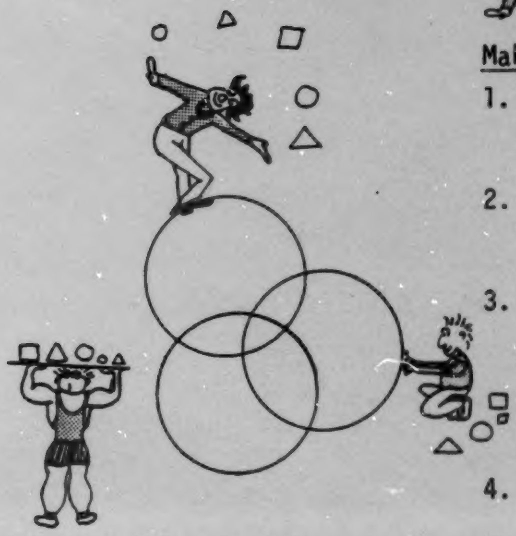
Once all the pieces have been made, the class can work together to sort the pieces into game sets. If time remains, play one or two games, using the sets. Descriptions of two games are listed below.

Games:

Make a Snake

1. Player One lays down a piece on the table.
2. Player Two chooses another piece which has two attributes (size, shape, color or material) which are the same and two which are different.
3. Player Two must say how it is the same and different (e.g. "My piece is the same color and size. It is a different shape.").


BIG BLUE RECTANGLE
BIG BLUE CIRCLE
BIG BLUE RECTANGLE
BIG BLUE TRIANGLE
BIG RED TRIANGLE
MEDIUM RED TRIANGLE
MEDIUM RED CIRCLE
MEDIUM RED TRIANGLE
SMALL RED TRIANGLE
SMALL RED RECTANGLE
MEDIUM YELLOW RECTANGLE
MEDIUM YELLOW CIRCLE
MEDIUM YELLOW SQUARE
BIG YELLOW SQUARE
BIG YELLOW CIRCLE



Making Sets

1. Lay out 3-5 string circles so each circle overlaps at least one other circle.
2. Put all the red pieces inside the red circle, the white pieces inside the white circle, etc.
3. Decide on categories of subsets you'll put in overlapping circles (e.g. all the small shapes which are red and white, all the small squares which are red, white, and yellow).
4. Make as many logical subsets as possible. Explain your choices.

Language

Role Play. Set up a role play between a job supervisor and an employee (located in the production room) and a clerk (located in the store room). Use reported speech similar to that found in the B level language box.

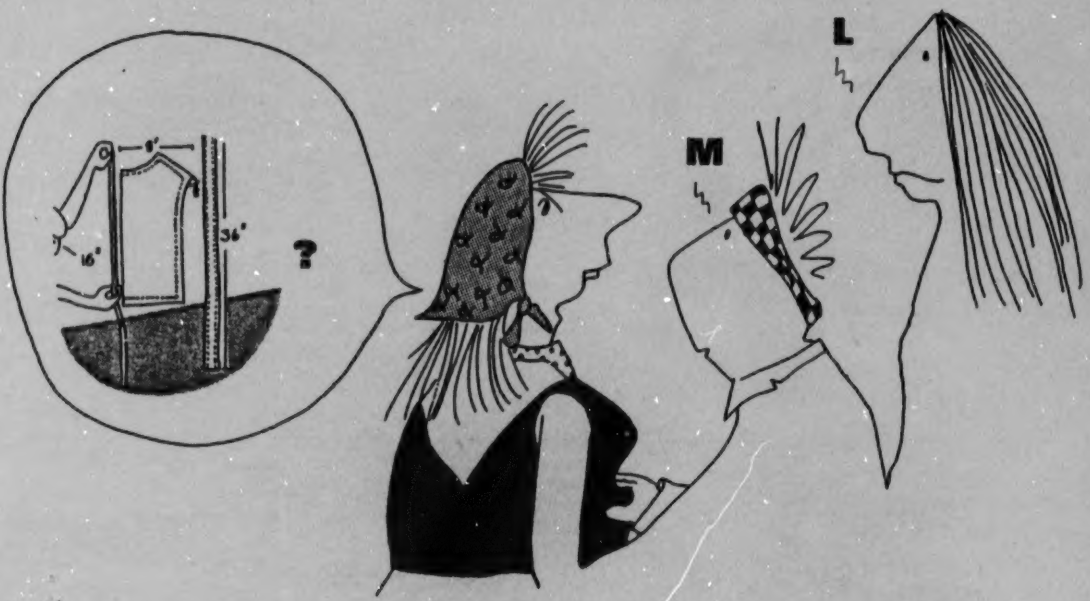
40 Attribute Sets

Planning

Lesson 41

A Shirt Pattern

In students' home countries procedures for clothing construction may have been handed down by example from generation to generation. Here students are introduced to commercially prepared patterns which are proportioned and adjusted for mass production.



Purposes

- To measure and report length in inches, feet and yards.
- To cut out shirt pieces from a prepared pattern.
- To use common clothing construction procedures and tools.
- To find the owner of a tool and/or ask to borrow a tool.
- To use reported speech to relay a message.

41 A Shirt Pattern

Tools and Materials

tape measure	1 per 3
ruler (calibrated in inches)	1 per 3
scissors	1 per 3
hand sewing needles	1 each
pins (in pincushion)	1 per 3
tracing wheel	1 per 3
tracing paper (package)	1 per 3
thread (spool)	1 per 3
pencil	1 per 3
eraser	1 each
cardboard, poster size	3 per class
felt pen	1 per class
cloth (cotton)*	9 yards per class
shirt patterns (in 3 or more sizes)*	1 per 3
sample shirt *	1 per class

*preparation required before class.

Language

Mark the pattern.

Whose pattern is this?	That is mine.
Whose patterns are these?	Those are his. hers. yours.
Can I borrow your pattern?	Yes, you can. Keep it. Please return it.

A

Ask him / her whose pattern it is?	She/he said that it's his / her pattern.

Tell him / her to mark the pattern.

pattern
scissors
tape measure

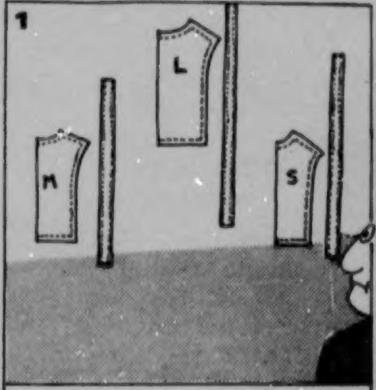
mark
straighten
pin
paste
keep
borrow
return

4-12
" (INCHES)
FT. (FEET)
YD. (YARD)

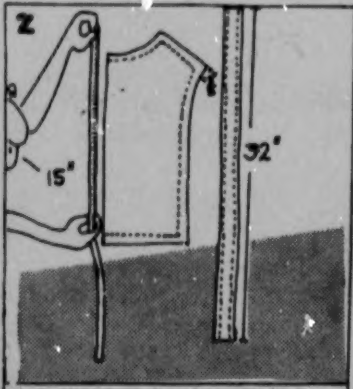
S (SMALL)
M (MEDIUM)
L (LARGE)
XL (EXTRA LARGE)

41 A Shirt Pattern

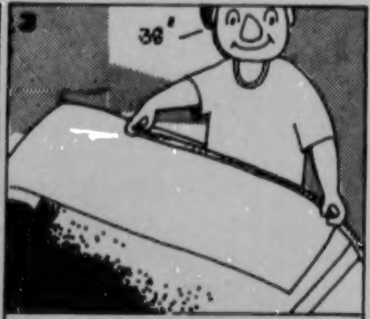
Activity



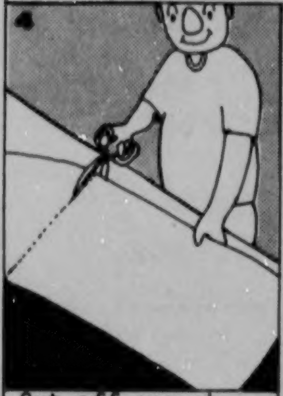
Look at several shirt patterns. Decide the size of shirt you want to make.



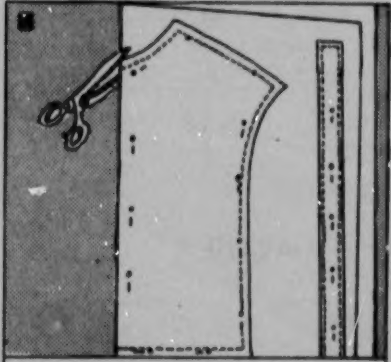
Read the instruction guide to find out how much cloth is required for each size.



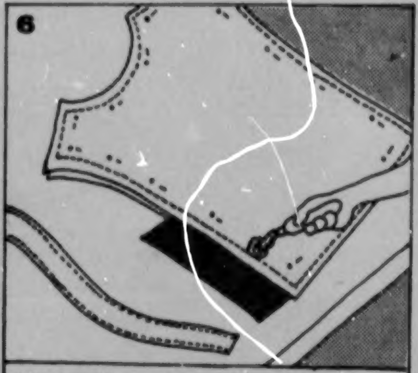
Measure the cloth you have. How many yards are there? Is there enough to make all the shirts?



Cut off enough cloth for your own shirt.



Pin the pattern onto the cloth. Cut out the shirt pieces and belt.



Mark the stitching lines indicated on the pattern using a tracing wheel and tracing paper.

Culture

In industrial sewing sometimes hundreds of people will work in a single shop. A highly trained designer will send a pattern to a pattern maker who make the design on fiberboard. A pattern cutter adapts the pieces to fit various sizes. A spreader lays out the cloth and a maker traces the pieces onto cloth for a machine cutter. Sometimes the machine cutter will use computer guided electronic scissors to cut layers of cloth up to 9 inches thick.

41 A Shirt Pattern

Notes

Preparation

Commercial Patterns. Although for this lesson a teacher-made pattern is provided, if available, it is preferable to use a commercial pattern. Select a simple shirt which comes in small, medium and large sizes. The amount of cloth needed will be specified on the pattern cover.

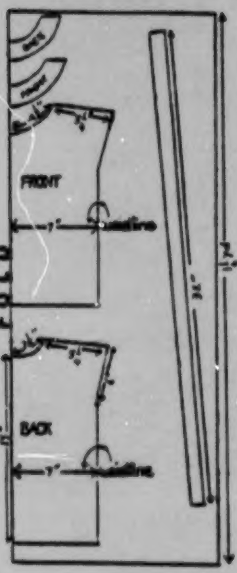
Teacher-Made Patterns. If it isn't possible to get commercial patterns, teachers can design their own. Get the help of a professional seamstress to make cardboard samples and try out each pattern first by making a demonstration shirt. Then, make student patterns from newsprint. Draw in stitching lines 5/8" from the outside edge of each pattern piece.

Our Pattern. The three shirts below fit children approximately 2 years old, 4 years old and 6 years old. Each pattern requires 1¼ to 1½ yards of 36" wide cloth.

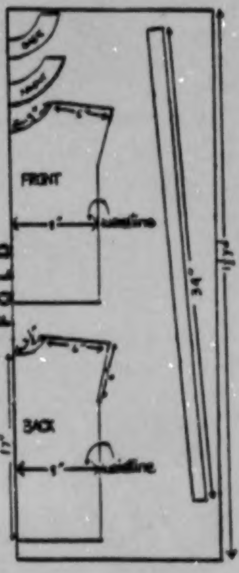
Cloth. The materials list specifies 9 yards of cloth. This is enough for a class of 12 to make 8 shirts. It's convenient to have each group of 3 students make 2 shirts.

Chart. Figure out the most economical way to lay out the pattern pieces onto the cloth. Make a diagram of the layout on a chart or on the blackboard.

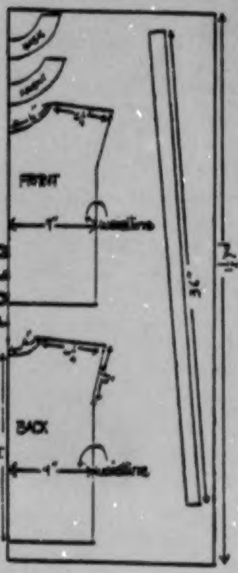
SMALL



MEDIUM



LARGE



41 A Shirt Pattern

Notes

Activity

Bring cloth to class in one uncut piece so students can have the opportunity to measure it. Demonstrate how to measure foot and yard lengths. Have students discover how many yards of cloth there are. How many feet are left over? How many inches? Next, have students read the amount of cloth needed for small, medium and large shirts and practice measuring the lengths. Divide students into teams and assist them to decide how much cloth their group will need.

CAUTION: Set up a procedure for putting pins back into a pin cushion immediately before they are removed from the cloth!

Make sure students label their cloth pieces before they are stored for use in the next lesson.

Language

Keep It. Fill a bag with assorted items. Some should be personal belongings of students and others inexpensive items (e.g. candy, matches or cards). Have each student choose one item from the bag, find out "whose" it is and ask if she/he can borrow it. Ask the owner to give a response (e.g. "Yes, you can.", "No, please return it." or "Sure, keep it.").

What Did She Say? Send a student out of class. Have the remaining students form pairs. One student in each pair makes a statement or gives a command to his/her partner. Have the students outside return and try to discover all that was said by asking questions of each partner (e.g. "What did he say?"). The partners answer (e.g. "He said that _______." or "He said to _______.").

Cultural Exploration

Standard Sizes. Show students a chart with standard shirt sizes. Have female students measure their busts and male students measure their necks and practice asking for the size of shirt they need.

Size	Neck Size	Size	Bust
XS	13½"	XS	28-31
S	14-14½"	S	32-33
M	15-15½"	M	34-36
L	16-16½"	L	38-40
XL	17-17½"	XL	42-46

41 A Shirt Pattern

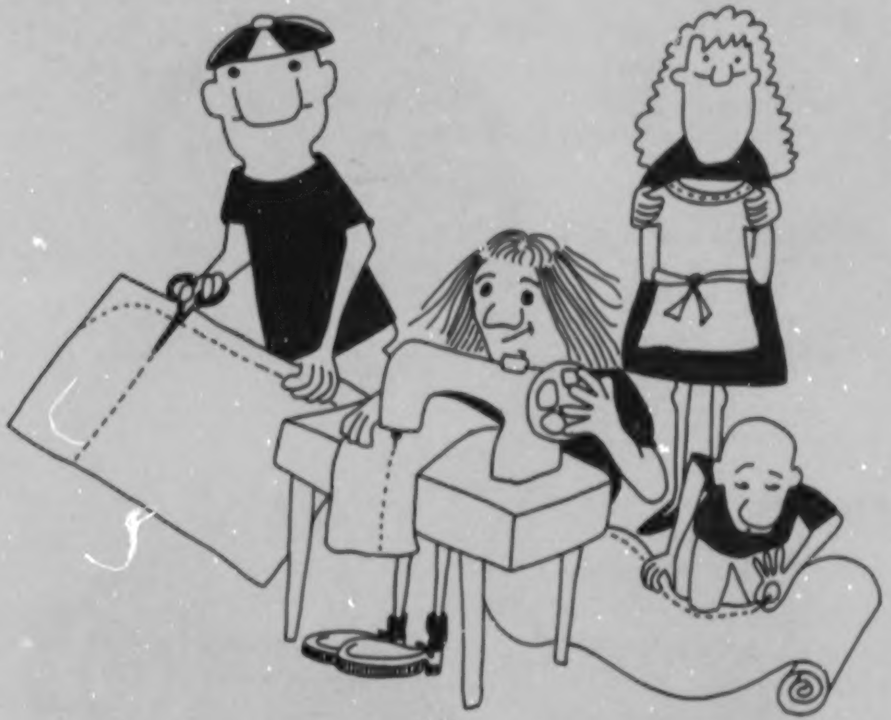
Planning

133

Lesson 42

Sewing a Shirt

Working in teams, students decide the most efficient way to organize the process of constructing shirts from several pattern pieces. They pin, baste, machine sew and complete hand-finishing work to produce shirts and belts.



Purposes

- To complete a clothing construction project which involves the use of a pattern.
- To measure using inch, foot and yard units.
- To work as a team to decide the most efficient way to complete the task.
- To operate a sewing machine following safety and maintenance procedures.
- To troubleshoot and report problems.
- To use reported speech to relay a message.

42 Sewing a Shirt

Tools and Materials

sewing machine	1 per 3
machine needles	4 per machine
bobbins	4 per machine
tape measure	1 per 3
ruler	1 per 3
tracing wheel	1 per 3
scissors	1 each
hand sewing needles	1 each
electric iron (optional)	1 per class
pencil	1 each
eraser	1 each
tracing paper (package)	1 per 3
thread (spool)	2 per machine
tailor chalk (optional)	1 per 3

patterns (from Lesson 40)*

cloth pieces (from Lesson 41)*

sample shirt (from Lesson 41)*

*preparation required before class.

Language

Turn the wheel.	Could you help me? I have a problem.
What's wrong?	This is broken.
Is it fixed now?	Yes, it's fixed.

A

Tell her to turn the wheel
him

What did she say? She said to turn
he He the wheel.

B

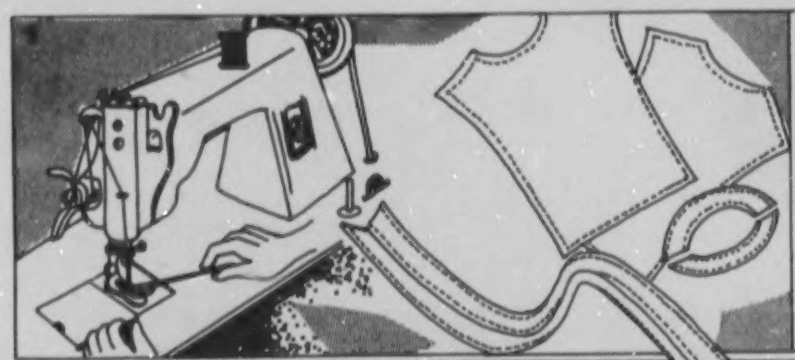
turn
push
pull the wheel
lift
shut the lid
tie
hold
trim the thread

broken-fixed
tight-loose
empty-full
stuck-unstuck

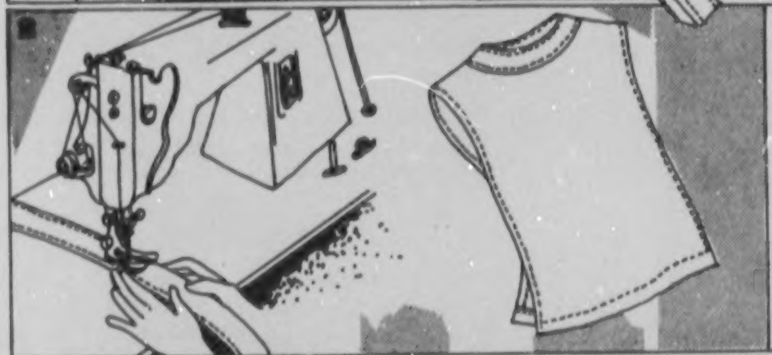
1-12
" (INCH)
FT. (FEET)
YD. (YARD)

42 Sewing a Shirt

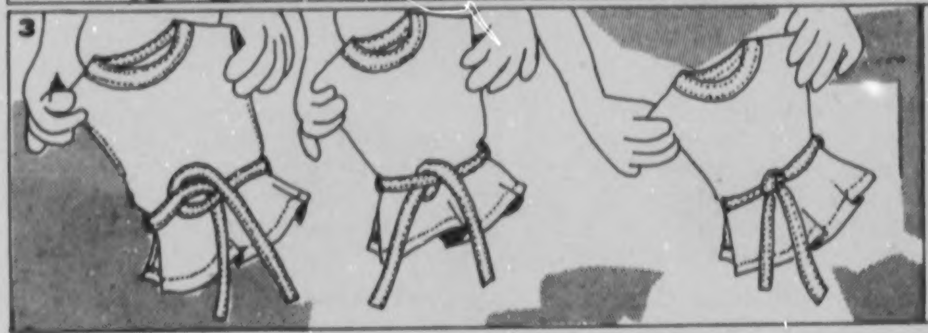
Activity



Set up your team's sewing machine and get the materials you'll need. Check to make sure each of your pattern pieces is marked with a 5/8" stitching line.



Pin, baste and then machine sew: the collar and sleeves; the shoulder and side seams; and the belt.



Compare your shirts with those made by others.

Culture

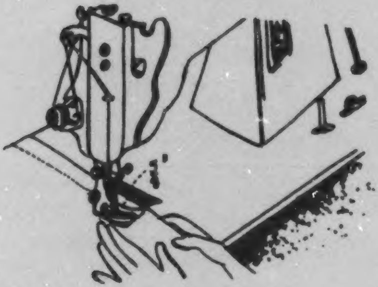
In industrial sewing, once the cloth is cut, it goes to the production floor. Assemblers match cloth and thread colors and get the pieces ready for sewing. Production workers often sew just one piece of the clothing--the collar, belt or pockets before passing it on to another worker. The garment inspector checks the finished products. Refugees frequently get jobs as production workers. Their salary may depend on the number of pieces they produce per day. Experienced workers advance to become garment inspectors.

42 Sewing a Shirt

Notes

Preparation

Sewing Machines. Sewing machine break-downs are the major problem in completing this lesson. Read the Sewing: Technical Notes Section in Shifting Gears, Book 1 to make sure you know how to make minor repairs. Test the tension appropriate for the cloth you'll use before class and adjust the machines.



5/8" Seams. Put a piece of tape on the shuttle cover plate, 5/8" to the right of the needle for students to use as a stitching guide.

A Sample Shirt. Have a sample shirt available for students to use as a model.

Activity

Combine a review of procedures for using the sewing machine with an introduction of the new language for this lesson. Practice threading the machine, opening and shutting the bobbin case to locate stuck threads and holding the threads so they don't pull out when you first begin sewing. Caution students that sewing over pins may break the machine needle.

Assign students to work in teams. Observe how they organize their tasks. How do they decide which pieces should be sewn first? Does one person do all the hand sewing and another the machine sewing? Try offering a minimum of assistance. Encourage them to ask in English if they need help. Discuss and compare the different ways of working at the end of class.

Some pieces need to be sewn together before others to allow for neat inside seams. Consult your commercial pattern guide for instructions. We followed this procedure:

1) Sew the front and back shirt pieces together at the shoulders.

2) Sew the two neck facing pieces together so they form a circle. Turn the shirt inside out. Match the facing to the circular opening at the shirt neck. Stitch the right sides together; then turn under the facing seams about ½". Stitch the facing to the shirt.

3) Turn under the cloth along each sleeve opening ½" and stitch down to the point at which the side seam begins.

Notes

Activity (Cont'd)

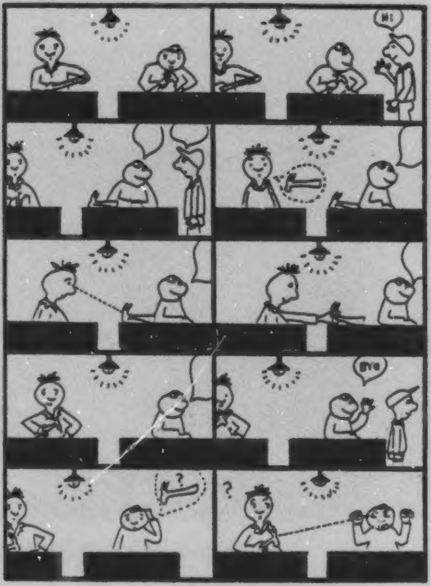
4) Stitch the sides of the shirt together. Where the seam meets the sleeve opening, backstitch to make a stronger seam.
5) Turn under and hand stitch the hem.
6) Fold the belt piece in half lengthwise. Turn under the open side and stitch along it, 5/8" from the outside edge. Then, turn under the two ends and stitch them closed. For an attractive belt, a 5/8" seam along the folded side can also be sewn.
7) If desired, two small belt loops can be made from scraps of fabric and sewn at waist length to the right and left side seams.

Measure at the end of class to see if shirts made by each group conform to a standard. If possible, iron the shirts. Label each shirt with its size.

Cultural Exploration

Costs. Give students the cost of a commercially made shirt, the cost of material by the yard and a shirt pattern. Have the students determine the approximate cost of making the shirt at home and compare this to the price of the ready-made shirt.

Picture Story. "Read" and discuss the following story illustrating borrowing and the need to request before taking tools.



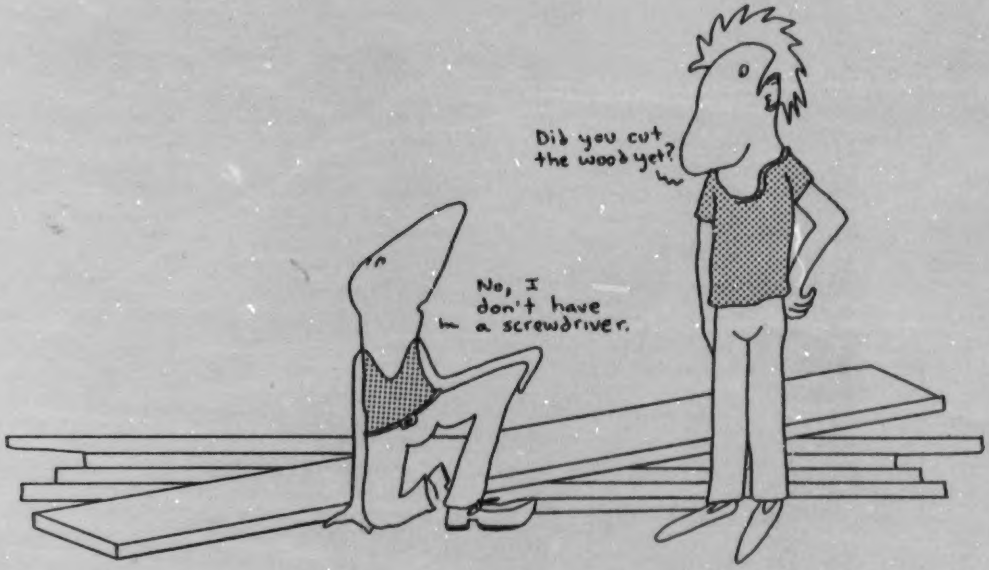
42 Sewing a Shirt

Planning

Lesson 43

Making a Jig

This is a woodworking project which can take up to 3 lessons to complete. In the first lesson, the students study a model jig (a device used to guide a tool such as a saw). They measure the dimensions of the jig and use the measurements to cut out the pieces of wood they will need. In the second and third lessons, students assemble the jigs and adapt them for cutting wooden blocks.


Did you cut the wood yet?
No, I don't have a screwdriver.

Purposes

- To complete a multi-step woodworking project using tools, techniques and procedures from previous lessons.
- To measure specified lengths (inches) by following diagrams and using a model.
- To use judgment in positioning screws and drilling holes to fasten pieces of wood together.
- To describe tasks in progress, future needs and completed work.
- To report how much time was needed to complete an activity.

43 Making a Jig

Tools and Materials

clock	1 per class	screws	
hand drill	1 per pair	1½" (flat head wood screw)	8 per pair
set of drill bits	1 per pair		
counter sink bit	1 per pair	2" (flat head wood screw)	1 per pair
hand saw	1 per pair		
back saw	1 per pair	extra screws (in case heads become stripped)	
"C" clamp	1 per pair		
rasp	1 per pair		
screwdriver (medium)	1 per pair	wood boards	
square	1 per pair	3/4" x 2½" x 12"	1 each
ruler	1 per pair	3/4" x 3½" x 12"	2 each
pencil sharpener	1 per pair	3/4" x 1½" x 3/4"	1 each
pencil	1 per pair	model jigs*	1 or 2 per class
cardboard, light weight, poster size	1 per class		
magic marker	1 per class		

*preparation required before class.

Language

What did you need yesterday?	I needed a drill.
Do you need a drill today? Did yesterday?	Yes, I do/did. No, I don't/didn't.
What are you going to need tomorrow?	I'm going to need a handsaw.

A

How did you make the jig?	First, I measured the jig.
When did you start? finish	At 5:10.
How long did it take?	It took 55 minutes.

B

drill
square
hand saw
screwdriver
(assorted tools)

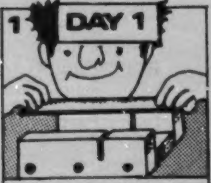
measure/jig
cut/pieces
file/wood
drill/holes
screw together/pieces

1-100
IN. (INCHES)
FT. (FEET)
1:00 - 12:59

43 Making a Jig

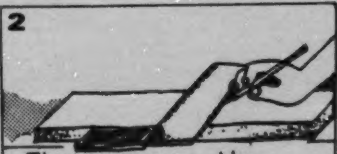
Activity

1



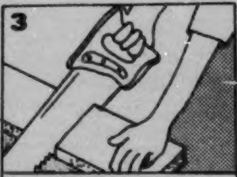
Use a ruler to measure the parts of a model jig.

2



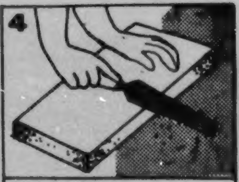
Then measure the pieces you'll need to cut to make a jig. Use a square and pencil to make a straight line for cutting.

3



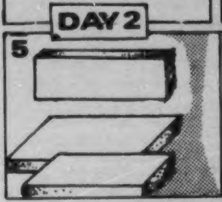
Use a hand saw to cut out the pieces for your jig.

4



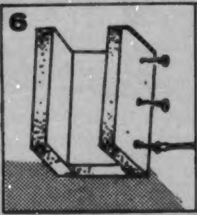
Use a rasp to smooth the rough edges.

5



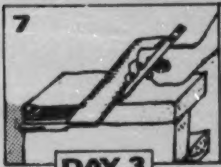
Mark the spots and drill the holes for the screws that will hold the jig together.

6



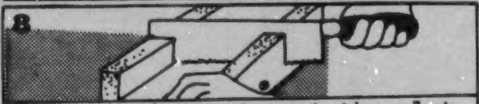
Use six screws (3 on each side) and a screwdriver to screw the pieces of wood together:

7



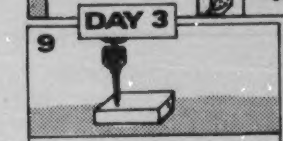
Mark the place where you will cut slots as in the model jig. Use a square to make the lines straight.

8



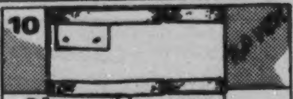
Use a back saw to cut the slots as in the model jig.

9



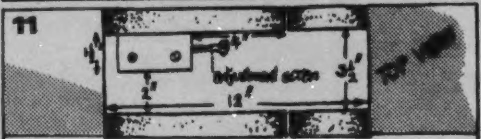
Drill two holes on the top of a block of wood ($\frac{3}{4}$" × 1½" × 3¼") and one hole on the side for the screws.

10



Place the wood block at one end of the jig (at the far end from the slot) and screw the block in place with two 1½" wood screws.

11



Add a 2" wood screw to the inside of the block, and adjust the screw to make the distance between the head of the screw and the slot equal to 4 inches.

Culture

Professional carpenters take great care to keep their tools in good repair. Rusty, bent or dirty equipment produces poor quality and wastes time.

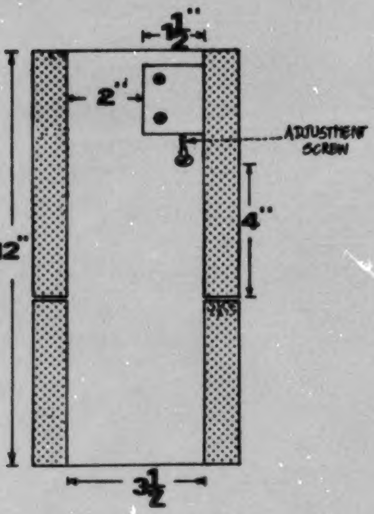
- What expectations does the employee have about the equipment workers are given?
- How should saws, drill bits and other tools be stored and maintained?
- How should the tools be stored at home?

43 Making a Jig

Notes

Preparation

Wood. See the Appendix: Woodworking section of Shifting Gears, Book 1 for tips on buying wood and using woodworking tools. Choose a hard wood so that after frequent use the slots of the jig don't enlarge.



A Sample Jig. Make one or two before class to use as demonstration models.

Diagrams. Draw a diagram similar to the one illustrated here. Hang it on the wall. Use it to refer to specifications and to practice language (diagrams of each step of the activity could be prepared for additional practice).

Judging the Size. If available, include a number of differently sized screwdrivers (including a Philips) and screws of various lengths and thicknesses. Let students choose the size of screw they feel is appropriate for the task and practice drilling holes which are the correct size.

Centimeters or Inches? Teachers may prefer to use metric measurement in this lesson. The specifications for the jig can easily be converted into centimeter units.

Activity

Show students a sample jig and demonstrate that it is a device used to cut wooden blocks of standard lengths. Explain that later they'll make blocks of various sizes, which can be used to play a problem-solving game, Numbers Lesson 35, (Shifting Gears, Book 1).

Jigs (and miter boxes) are designed for use with a back saw. The metal support of the back saw stops the saw blade from damaging the bottom of the jig after the piece of work (e.g. wooden block) has been cut, if the back saw is matched to the height of the jig's walls.

43 Making a Jig

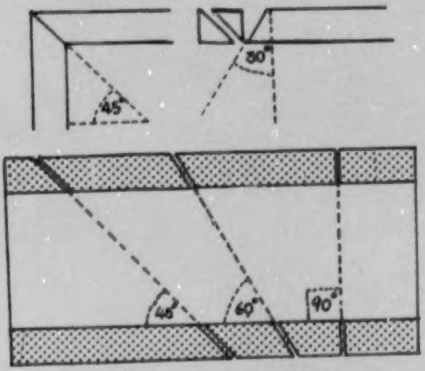
Notes

Three days are provided to complete this activity, to allow students plenty of time to experiment with the tools, learn safety procedures and practice language. The activity can be completed in two days if the tasks are well organized.

Before beginning each day's activities, review the proper use of the required tools and related safety precautions. See Appendix: Woodworking in Shifting Gears, Book 1.

Encourage students to refer to the model jig and the specifications on the diagrams to resolve problems.

Other woodworking projects can be substituted for the one described here. Specifications for making a wooden stool and a simple box are described in the Appendix: Handouts. Make sure the project you choose still allows the students to reach the same objectives as those outlined in this lesson.



With almost the same materials a miter box can be made instead of the jig described in this lesson. A miter box is good for cutting narrow strips of wood at an angle. It can be used to cut triangular blocks or make picture frames. Make the base of the jig narrower (2½" instead of 3½") and cut three slots in it as shown in the illustration.

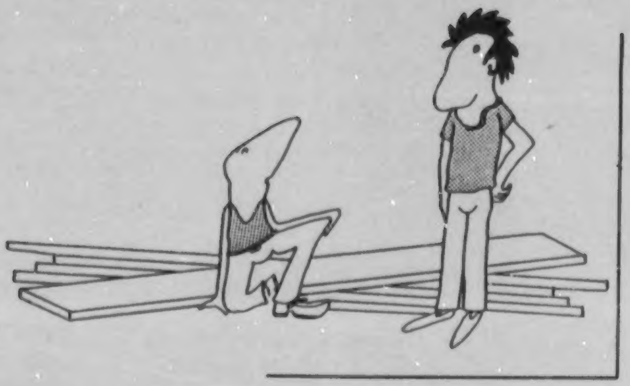
Language

Description. Before beginning each day's activities, ask students to describe what they are going to do, using the future tense. Plan time at the end of class to review the tasks they have finished (past tense) and talk about what is going to be done on the following day. Students can draw pictures of the tasks on the blackboard.

Time It. Ask students to write down the time they begin and finish each step. Have them compare times at the end of class.

Woodworking Diagrams. Pass out a copy of Woodworking Design A : A Stool or Design B: A Box. Evaluate students' ability to name the dimensions of the box or stool, describe the tools needed to make it, and tell the procedures involved. Or, have students plan their own diagrams and talk about them.

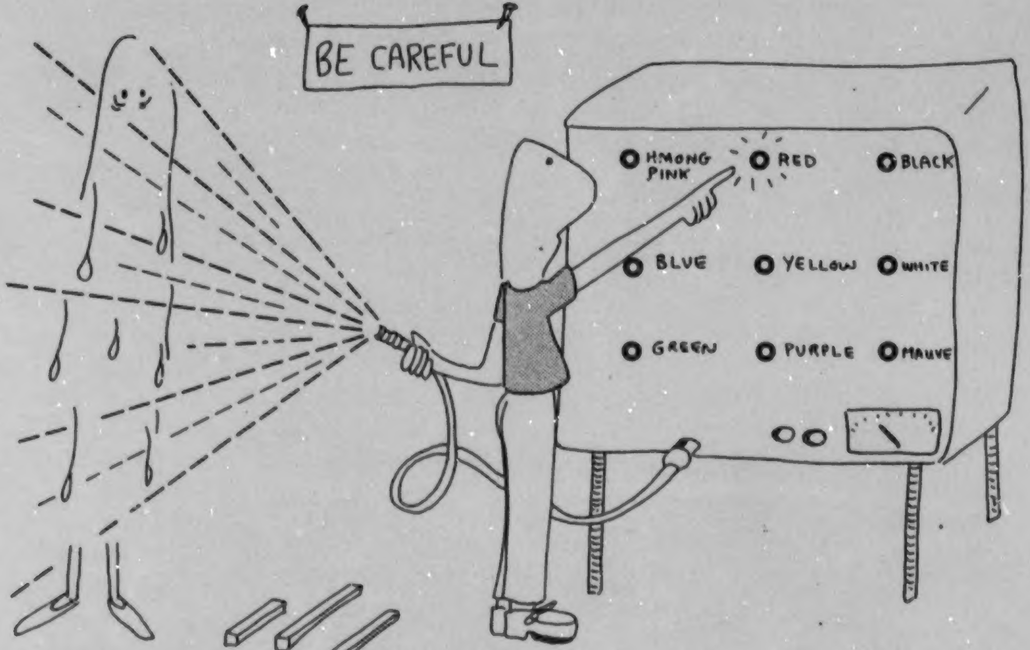
Planning



Lesson 44

Sanding and Spray Painting

Using the jigs they made in the previous lesson, students cut blocks of wood to specified lengths. Each size of block is then painted a different color. Throughout the activity students focus on following safety procedures, reading safety signs and giving warnings.



Purposes

- To make a set of wooden blocks which students can use to play a problem solving game.
- To use a jig to cut standardized lengths.
- To use spacers to change the lengths of wood to be cut.
- To use an aerosol spray paint device.
- To follow safety procedures; describe safety hazards.
- To read safety signs and give appropriate warnings.

44 Sanding and Spray Painting

Tools and Materials

back saw	1 per pair
screwdriver (medium)	1 per pair
pencil	1 each
sandpaper, fine	½ sheet per pair
spray paint (5 colors)	1 can per pair
newspaper	1 sheet per pair
block 3" long (to serve as spacer)	4 per class
2½" long (to serve as spacer cut from 1" x 1" stock)*	4 per class
5 sample blocks or Cuisenaire Rods* (1", 1½", 2½", 3" and 4" lengths)	2 sets per class
wood stock 1" x 1" x 28"	1 per pair
Jigs (made in Lesson 43)	1 per pair

*preparation required before class.

Language

Is this safe or dangerous? It's dangerous.

Read the sign.
What does it say? It says DANGER.

Watch out!

A

X: Don't light a match.
paint inside.
breathe the spray paint.
eat the paint.

Y: Why not?

X: Because it's dangerous.

B

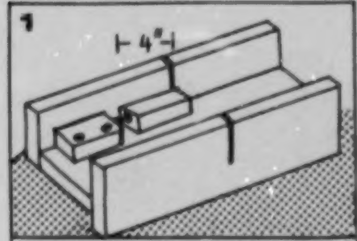
safe/dangerous
wet/dry
red/blue
2 in./4 in.

take off/lid
press/button
spray/paint
clean/button
put on/lid

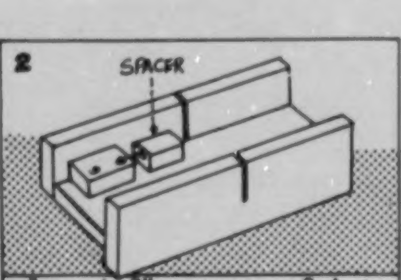
CAUTION
DANGER
POISON
KEEP OFF
WET PAINT

1-30
" (INCHES)

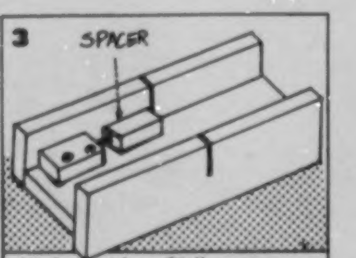
Activity



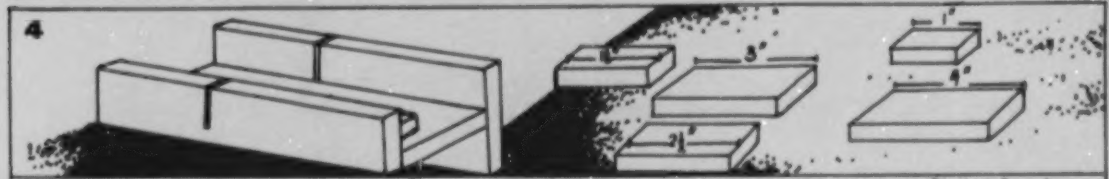
Use the jig and a back saw to cut a block 4" long.



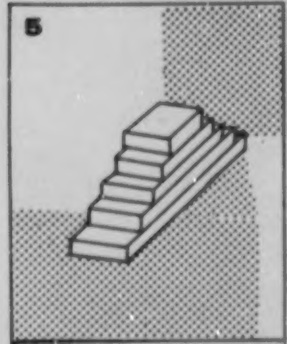
Insert 3" spacer. Cut a 1" block.



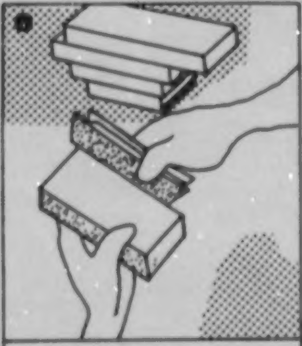
Using the 2½" spacer, cut 1½" block.



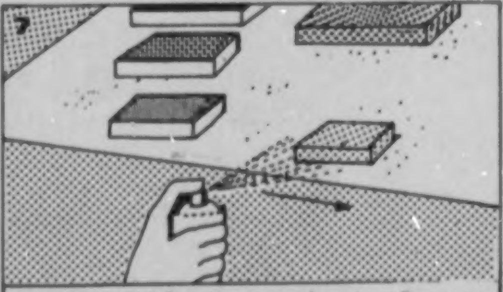
Use the blocks you have just cut as spacers to cut a 3" and a 2½" block You should now have a set of 5 blocks (1", 1½", 2½", 3" and 4").



Make a second set of each of the blocks, so that you have 2 of each length.



Sand the blocks so that they are smooth.



Take the blocks, a sheet of newspaper, and the spray paint outside. Spray each size of block a different color.

Culture

All worksites in the U.S. have safety rules that every worker is expected to follow. Many of the rules concern special clothes or other safety items that must be worn, the safe way to perform work tasks and the use of equipment while working. A safe work environment is maintained by workers who are able to recognize safety hazards, warn or advise co-workers of unsafe conditions and report accidents.

- What are some typical safety rules you might encounter in a woodworking shop?

44 Sanding and Spray Painting

Notes

Preparation

Sample Blocks. Cut and spray paint two sets of blocks that students can use as models. Cut 2½" and 3" spacers (4 each). The spacers should not be painted.

Centimeters or Inches? The wooden blocks can be measured using centimeter units instead of inches, if desired. Each pair of students will need wood stock 2 cm x 2 cm x 70 cm. The blocks can be cut to 2, 4, 6, 8 and 10 cm. lengths; the spacers will be 6 cm. and 8 cm. long.

Safety Signs. Prepare signs (e.g. DANGER, POISON, KEEP OFF, WET PAINT) to be hung in the classroom.

Do It Outside. Find a location out-of-doors where it will be possible to spray paint the blocks.

Activity

Review how to cut a block of wood using the back saw. Focus on safety (e.g. "Hold the saw like this.", "Don't saw in front of the door.", "Put the saw here when you finish."). Show some unsafe practices and encourage students to voice warnings (e.g. "Watch out! That's Dangerous!").

Show students the pieces in the model set of blocks. Measure each piece and explain how to use the jig and spacers. Instruct each pair of students to make 2 sets of blocks.

Demonstrate the safe use of aerosol spray cans. Include the following points:

- Use the spray cans only where there is plenty of ventilation, if spraying inside, open windows and doors to allow air to circulate.
- Shake the can before using it.
- Hold the can 12" to 18" from the object to be sprayed.
- Spray evenly, from right to left, one strip at a time.
- Wait until the first coat of paint has dried thoroughly before applying a second coat.
- Clean the button of the spray paint by holding the can upside-down and spraying until paint no longer comes out, before putting on the lid.
- Don't eat the spray paint or spray it on your body.
- Don't breathe the fumes.

Notes

- Don't light a match around spray painting. (The contents of aerosol spray cans are usually flammable. They can explode if they catch fire.)
- Don't throw empty cans in trash which will be burned.

Use the sets of wooden blocks to play a problem-solving game called "Trial and Error." The game is described in Numbers Lesson 34 (Shifting Gears, Book 1).

Language

Questions and Answers. While the students are waiting for the painted blocks to dry, play a guessing game. Ask one student to leave the work area. The remaining students identify one of the blocks. When the student returns she/he must find out which block they chose by asking questions with "or" (e.g. "Is it red or blue?", "Is it wet or dry?" and "Is it here or over there?").

Operations. Draw the step by step instructions for the use of a spray can on the blackboard. Give one instruction for each picture. Use "Don't" and a command to give warnings. Next, ask students to give the instructions and cautions.

Safety Signs. Find pictures from magazines which match the safety signs DANGER, POISON, KEEP OFF, AND WET PAINT (e.g. a recently painted highway for KEEP OFF and objects in a medicine cabinet for POISON). Ask students to tell if the situation in the picture is safe and dangerous and choose the appropriate safety sign (see the Literacy Activities section to help students learn to read sight words).

Cultural Exploration

Discuss the questions in native language.

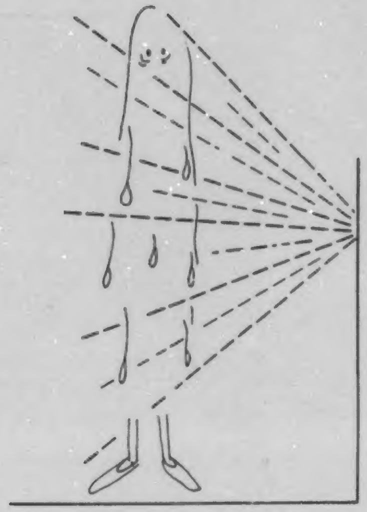
What problems did you face when you were given the task of making 5 blocks of different sizes? How did you solve the problems?

Did you use the ideas of other people in order to complete the task? In the workplace, why is it important to establish good rapport with your co-workers?

Do you have anything around the house that you can beautify using spray paint?

$\boxed{44}$ Sanding and Spray Painting

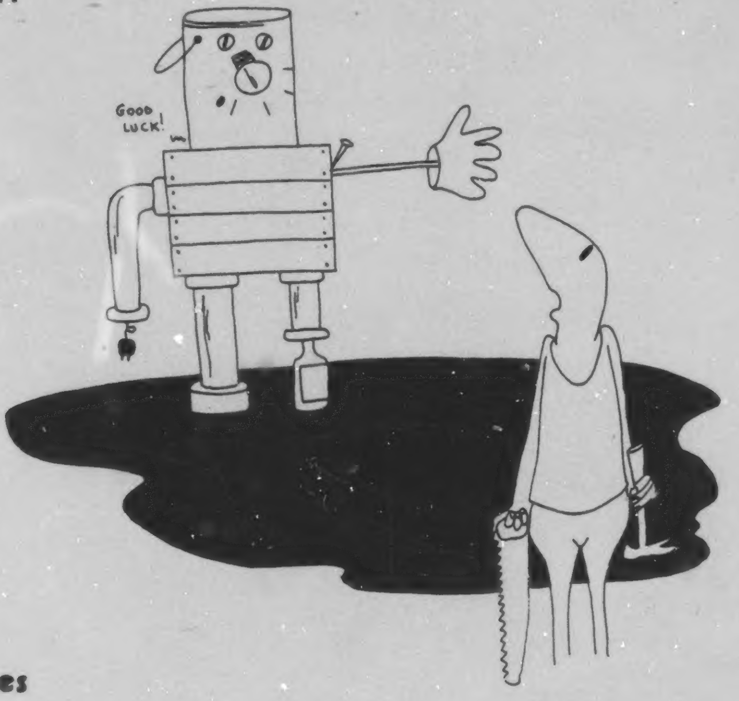
Planning



Lesson 45

Make Something

What useful objects can be made from odds and ends such as screws, nails, plugs, light bulbs, pieces of string, wire, pipe, wood and cloth? In this lesson students use their skills to create something original.



Purposes

- To allow students to experiment with familiar and unfamiliar tools.
- To construct a useful object from a limited variety and amount of materials.
- To assess students' ability to:
  - Work independently, without directions from a teacher.
  - Plan, organize and finish a project.
  - Use tools safely and effectively.
  - Understand natural, conversational English.
  - Describe ongoing, completed and intended actions.

45 Make Something

Tools and Materials

hand saw	2 per class	plain paper	1 each
hammer	2 per class	cardboard (8½" x 11" sheet)	6 sheets/ class
screwdriver (medium)	2 per class	screws (medium)	1 small box/ class
hand drill	1 per class	nails (medium)	1 bundle per class
drill bit set	1 per class	wood	scrap
rasp	1 per class	wire (lamp cord and bell)	scraps
razor knife	2 per class	socket (for bulb)	2 per class
test light	2 per class	switch (regular)	2 per class
straight edge	6 per class	plugs	5 per class
square	2 per class	bell	1 per class
compass	3 per class	bulbs	2 per class
scissors	3 per class	needles	3 per class
pencil	1 each	cloth	scraps
eraser	1 each	thread (spools)	3 per class
glue	1 container/ class		
glue applicator			
solder kit	1 per class		
wire cutters	2 per class		
measuring tape (roll)	1 per class		

Language

Whatcha gonna do?	(Omina) cut this.
Wha'cha got?	I gotta saw.
Whatcha doin' now?	I'm sawin'.
Wha'dja make?	I made a ______.
Where dja put it?	Over there.

A

Howdja make your ________?	First I hadda cut it. Then, I gotta drill.
Whydja do that?	Because (_______).

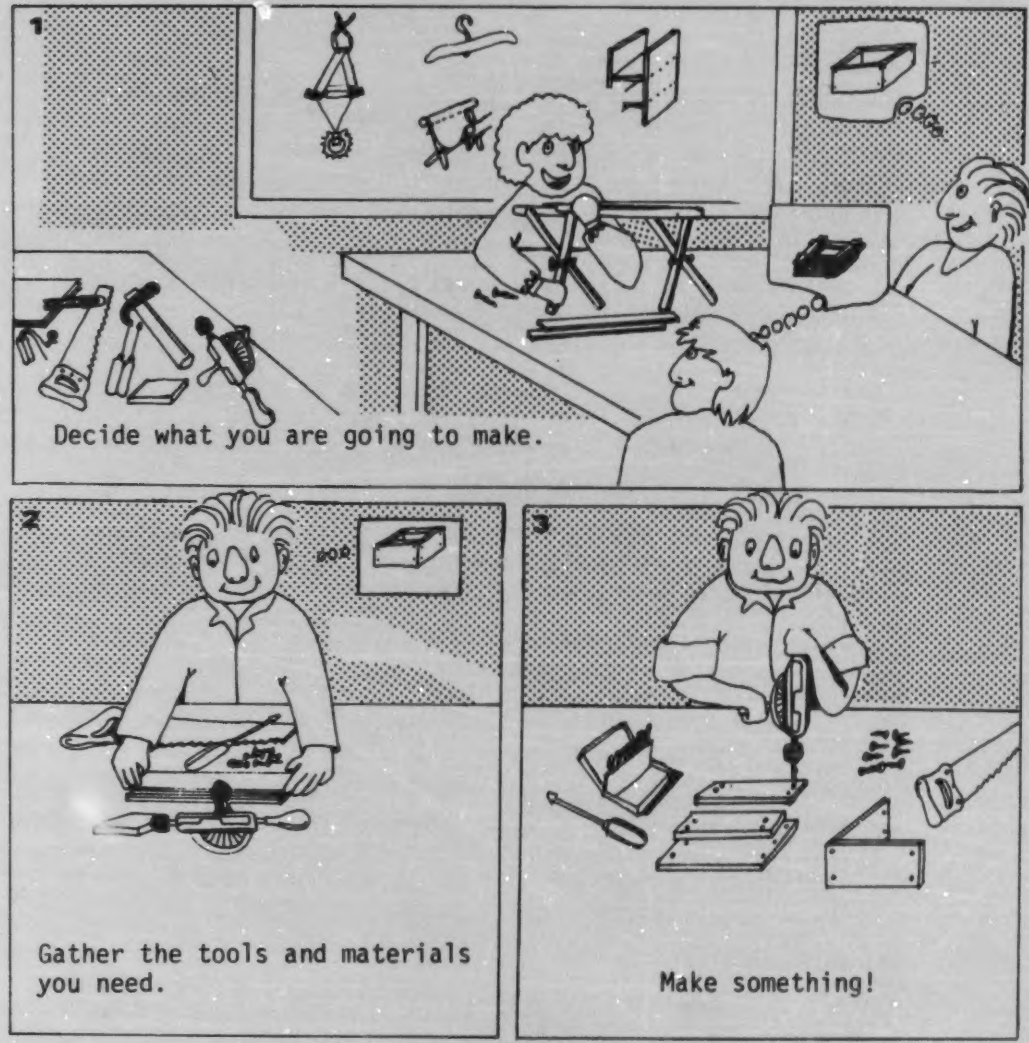
B

saw
hammer
wire cutter
razor knife
screwdriver
drill
soldering iron
pipe
screw

cut
draw
make
put on
drill
solder
connect.

45 Make Something

Activity


1
Decide what you are going to make.
2
Gather the tools and materials you need.
3
Make something!

Culture

"Do-it-Yourself" is a common expression heard in the U.S. Many Americans enjoy doing simple projects at home. There are many sources of plans for projects available at libraries and newsstands--books and magazines about making furniture laying walks or making simple home repairs. Many of the books and magazines contain photos, diagrams, patterns or drawings in addition to the text.

45 Make Something

Notes

Activity

This is an open-ended lesson. There is intentionally, no specific procedure to follow. The teacher may want to stimulate ideas for projects by having students draw some pictures of objects they have made in previous classes, but encourage students to come up with ideas other than the examples.

If at first the students are confused about what to "make," the teacher can start making something, leaving the students to begin at their own pace.

This lesson gives the teacher a chance to assess what students have learned in a relatively non-directive, creative manner. Observe if students:

- Work alone or in groups.
- Use just one type of tools and materials (e.g. electrical or woodworking) or a combination of materials and many tools.
- Use tools properly and safely.
- Design a simple or complex project.
- Work constantly on their project or jump from one plan to another.

Some teachers may want to limit the materials for this lesson to just one type (e.g. woodworking, paper or soldering/electricity). This reduces the burden of materials preparation and, by narrowing the choices students would have to make, facilitates getting projects completed.

Language

"Real" English. In natural fast conversation, most native speakers use contractions (two words shortened or combined into one word). Some are written with apostrophes to show where sounds have been left out (e.g. "Don't"). Other contracted words (e.g. gonna and gimme) are spoken but rarely written in the reduced form. When a question word is combined with "Did you" a slight sound change occurs as the three words are contracted together (e.g. "Whydja", "Wheredja", "Howdja", and "Whatcha"). Try using contracted speech when you talk with your students. Are they able to understand? (see Language Activities, page 266).

Student Initiated Language. During the activity, wait for students to initiate language. Observe their ability to:

45 Make Something

Notes

- ask for things they need.
- get assistance when they have a problem.
- use clarification language when they don't understand.
- warn each other of safety hazards.

Show and Tell. After the activity ask each student to describe the tools they used and the steps they followed to complete their project.

Cultural Exploration

Reflection. Ask the students to think about the lesson and answer these questions:

- What skills did you use making your "thing"?
- Which tools do you like to work with the most? The least?
- What jobs in the U.S. would give you the opportunity to use the tools you like using?

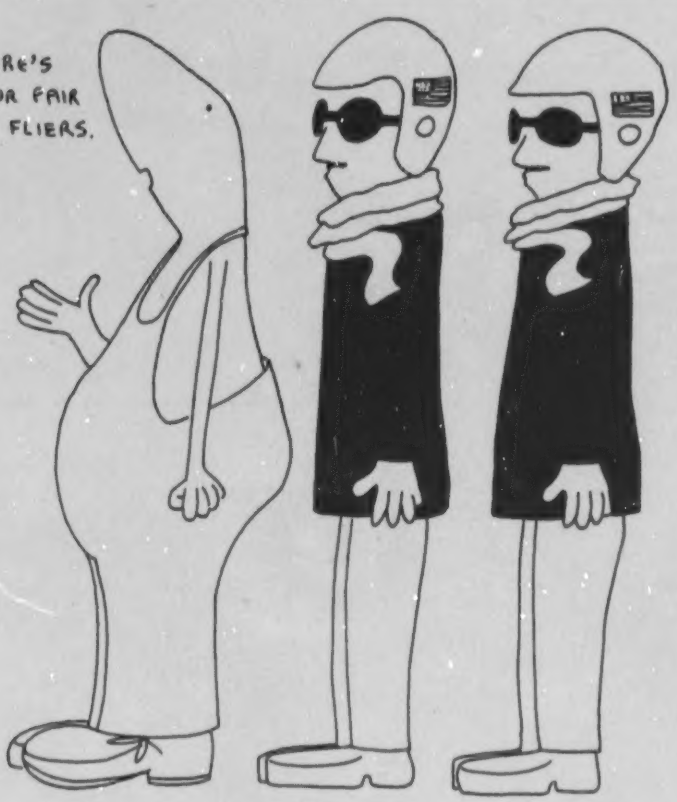
The Question. What job would you like to have in the U.S.?

45 Make Something

Planning

Lesson 46

Do It Yourself


HERE'S YOUR PAIR OF FLIERS.

Purposes

46 Do It Yourself

Tools and Materials

Language

46 Do It Yourself

Activity

Culture

46 Do It Yourself

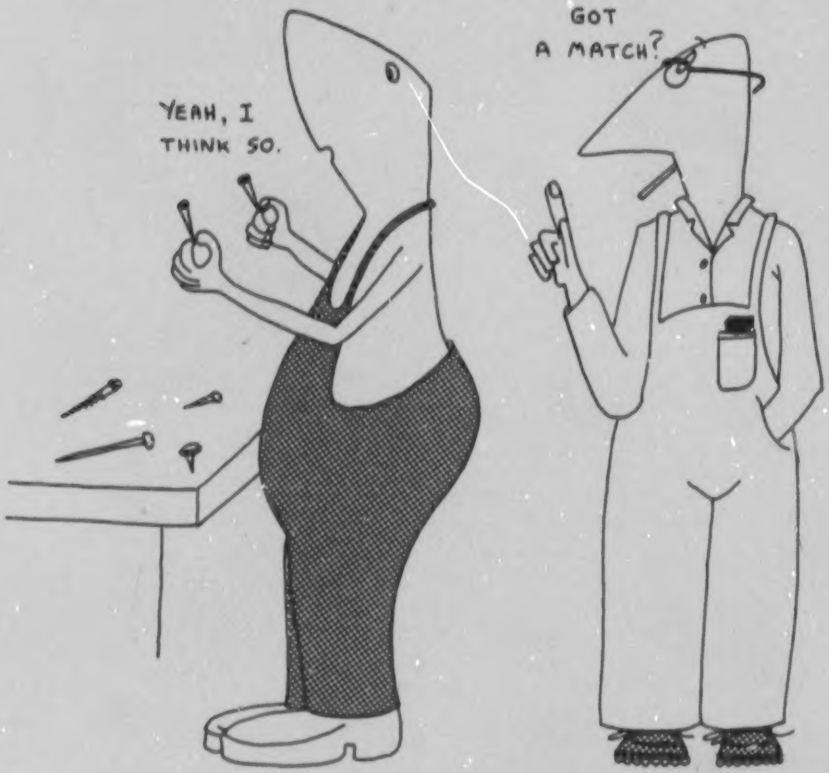
Notes

Planning

Planning

Lesson 47

Do Another One


YEAH, I THINK SO.
GOT A MATCH?

Purposes

47 Do Another One

Tools and Materials

Language

47 Do Another One

Activity

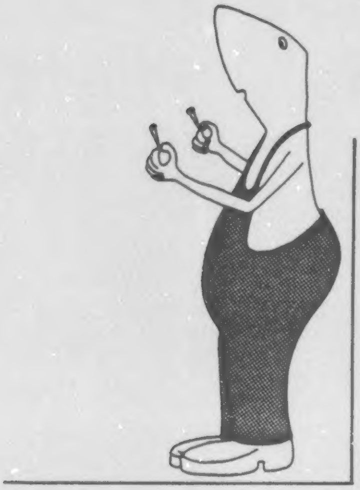
Culture

47 Do Another One

Notes

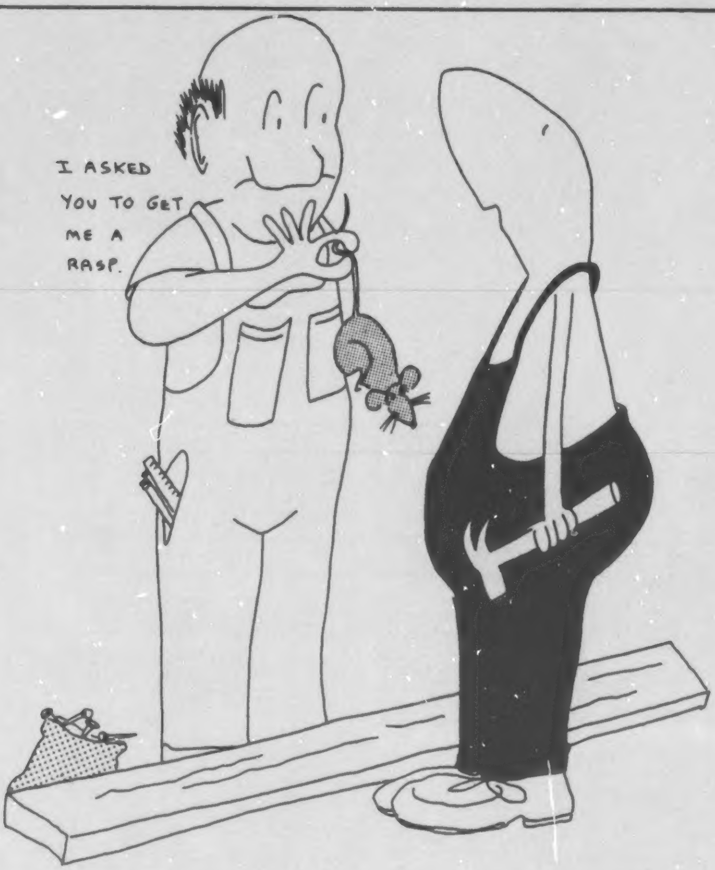
Planning

Planning



Lesson 48

The Last One


I ASKED YOU TO GET ME A RASP.

Purposes

48 The Last One

Tools and Materials

Language

48 The Last One

Activity

Culture

48 The Last One

Notes

Planning

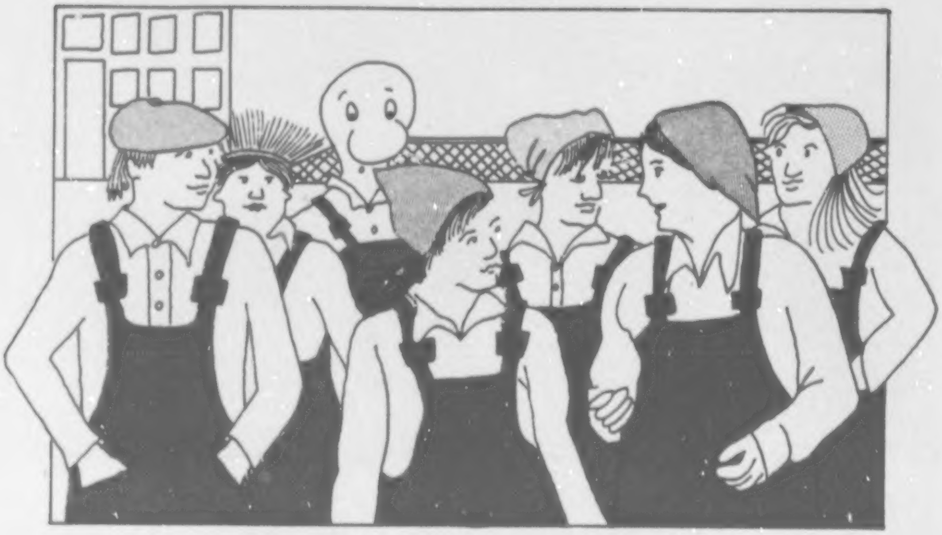
Planning

Simulations

1 An Assembly Line

2 A Hardware Store

3 A Job Interview



Simulations

For many refugees the process of applying for work, the routines of a first job, a trip to the hardware store and other everyday events in an urban environment will contain many bewildering cultural elements. The roles, customs and behaviors of others will seem strange at first. The language people use will differ from that which they have practiced in the classroom; responses to their actions will be unpredictable.

This section contains three simulations: An Assembly Line, A Hardware Store and A Job Interview. Each one builds on skills and language which have been taught throughout the curriculum. The focus of the simulation, however, is not on the task but on the interactions that occur between people on the job: employees and supervisors, cashiers and customers, interviewers and interviewees. The simulations can be used at any point during the curriculum, or can form a special unit which is taught after all the lessons have been completed.

What is a simulation? In many ways it's like a dress rehearsal of a real-life event. The teacher sets the stage by choosing a situation in which students are likely to find themselves. Students and English speaking participants are each assigned roles of people who might be involved, typical activities such as packaging boxes or choosing jobs from want-ads are set up, cultural elements which might come up are built into the action, and the setting is made as realistic as possible by rearranging the room to look like an office, store or factory.

Unlike a play, however, there is no fixed "script" to follow. Instead participants are encouraged to draw upon all their skills to interact in a natural way. The outcomes are open-ended; there is no "right" behavior. Mistakes and misunderstandings may occur, just as they do in real life.

Staging a simulation can accomplish many purposes. It can:

- help students visualize ways in which they will apply the skills they've learned;
- give students a chance drawn upon all their language skills to communicate in a complex environment;
- provide a context for understanding attitudes, expectations and behaviors of Americans;
- help students develop strategies for coping with unfamiliar situations, cultural miscommunication;
- give the teacher a chance to assess students' abilities to use what has been taught.

Often a simulation requires several days. Students need to be briefed before the simulation so that they understand what they will be practicing and why. Sample language dialogs can be practiced and students may need special training to learn the expectations of their role. After the simulation, it's important to have a chance to discuss what happened, to talk about alternative strategies for dealing with problems and areas where cultural misunderstandings came up. These follow-up discussions are usually most effective if a native language interpreter is available.

The teacher and other native language visitors play a key role in any simulation. Generally, the more English speakers you can invite the more realistic the simulation can be. Brief the visitors, letting them know that as participants they should behave as they naturally would in the situation, avoiding stereotypes of their role. Student should also understand that the teachers and visitors will not correct their mistakes and that, just as in real life, threatening or uncomfortable situations may occur.

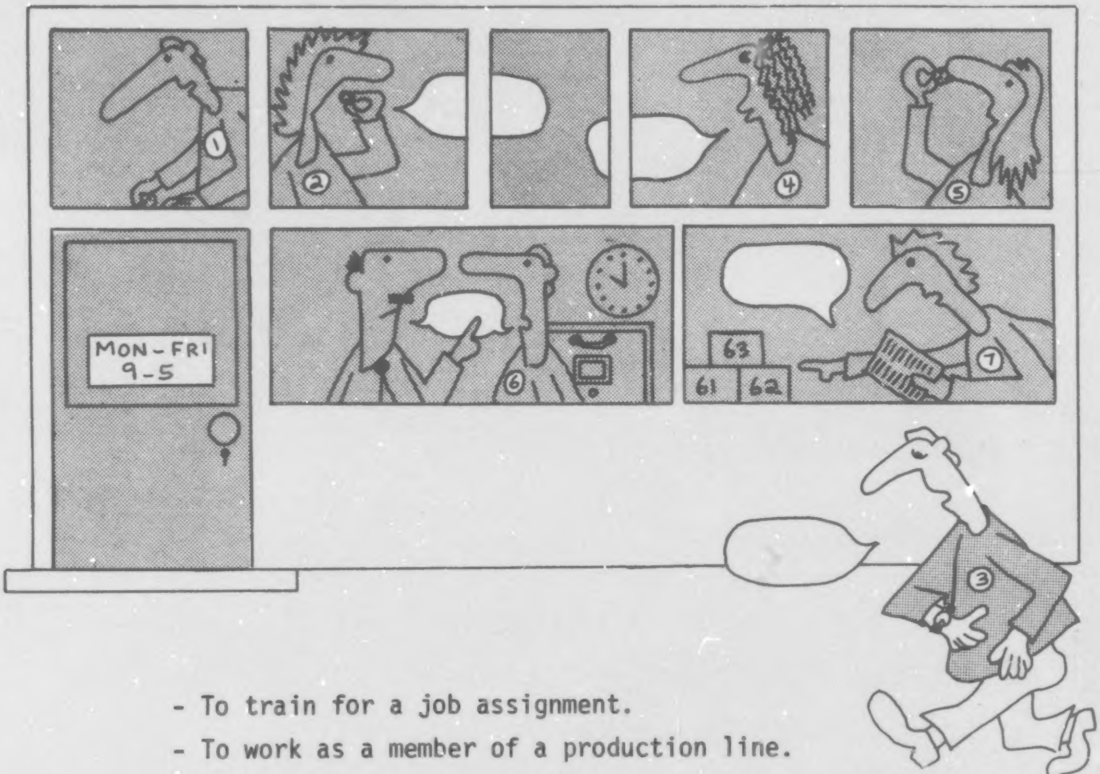
Each lesson plan contains several sections to help you plan what to do:

> The TOOLS AND MATERIALS list gives suggestions for items which will create a realistic setting, but leaves it up to the teacher to specify how many of each item to use. If possible, substitute authentic materials (e.g. store receipt forms, money) for teacher-made ones.
>
> The PREPARATIONS section suggests activities to use before the simulation. Consult this section to decide how many days you'll need to get ready.
>
> The two-page ILLUSTRATION of the simulation can provide you with ideas for arranging the room space, setting up work stations and distributing the materials.
>
> The INTERACTION section gives some typical problems which could be be "planted" into the simulation (e.g. giving a customer the wrong change, changing the work orders for a production line). They'll give students a chance to cope with difficulties; provide a context for later discussions.
>
> The FOLLOW-UP section has options for examining what happened, including role plays, open-ended stories and reflective questions.

Reading the lesson plans will help you understand what a simulation is and how to organize one. You may decide to change the simulations to reflect the way things are done in your own city. Or, try making up other simulations which are appropriate to your own students' needs.

An Assembly Line Simulation

In this activity the classroom is organized to simulate a factory which assembles door locks. Students become production workers, packers and quality control inspectors. The simulation provides a context for understanding mass production and elements of entry level jobs. Students train for the jobs and learn the expectation of employees during one or two days of practices which take place before the actual simulation.



- To train for a job assignment.
- To work as a member of a production line.
- To assemble a number of door locks within a specified time.
- To inspect products for quality control.
- To observe common work routines and procedures.
- To read a floor plan, worksite signs and schedules.
- To use conversational English to clarify instructions and troubleshoot problems.
- To discuss employer/employee expectations.

Tools and Materials

Lock Sets 10-15 per class

Each set includes:

- 1 lock case
- 1 lock bolt and spring assembly (with back-plate)
- 2 short silver screws
- 1 cylinder
- 3 keys
- 1 trim ring
- 2 long silver screws
- 4 long gold screws
- 1 wall piece
- 1 three-hole plate
- 1 box top
- 1 box bottom

plastic containers (to hold parts)

Tools	
screwdriver	3 per class
scissors	2 per class
stapler	1 per class

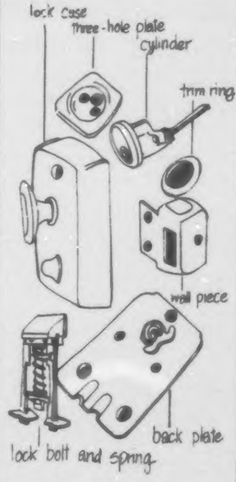
Materials	
string (roll)	1 per class
plastic bag	2 per lock set
rubber band	1 per lock set

Forms	
inspection slips*	1 per lock set
check list (listing contents of one lock set)*	1 per class
time sheet*	1 each

Props	
clock/time clock	1 per class
work schedule (chart)*	1 per class
floor plan (chart)*	1 per class
worksite signs*	

*preparation required before class.

Language



Supervisor	Employee
What's your job?	I'm a/an assembler. packer inspector supervisor
Where's your work station?	It's here. Over there. Next to ______. Station 1.
When do you sign in? start sign out finish take a break	At ______. In ______ minutes.

Preparations

Preparation 1: Before the day of the simulation, draw a floor plan which locates each work station. Put together a sample lock, modeling tasks to be performed at each station. Ask students to suggest language they could use to clarify instructions or get assistance. Name job titles, including the teacher's role of supervisor.

Preparation 2: Review some things employees will be expected to do: sign in on time; learn their job; ask their supervisor if they have problems, need more materials, or need to leave their station. Specify the number of locks which should be completed. Review the work schedule, including break times.

Setting Up. Before class arrange the room, using the illustration on the next page as a guide. Place the required equipment at each table; put "extras" on a desk marked OFFICE/STOREROOM; draw a floor plan and work schedule on the blackboard.

Roles. Write the name of each job and work station on a slip of paper. Have students choose roles randomly, sign in and find their work station.

Training. On-the-job training takes place while the first two locks are being assembled. After training employees should initiate contact with the supervisor if they have a problem.

Language

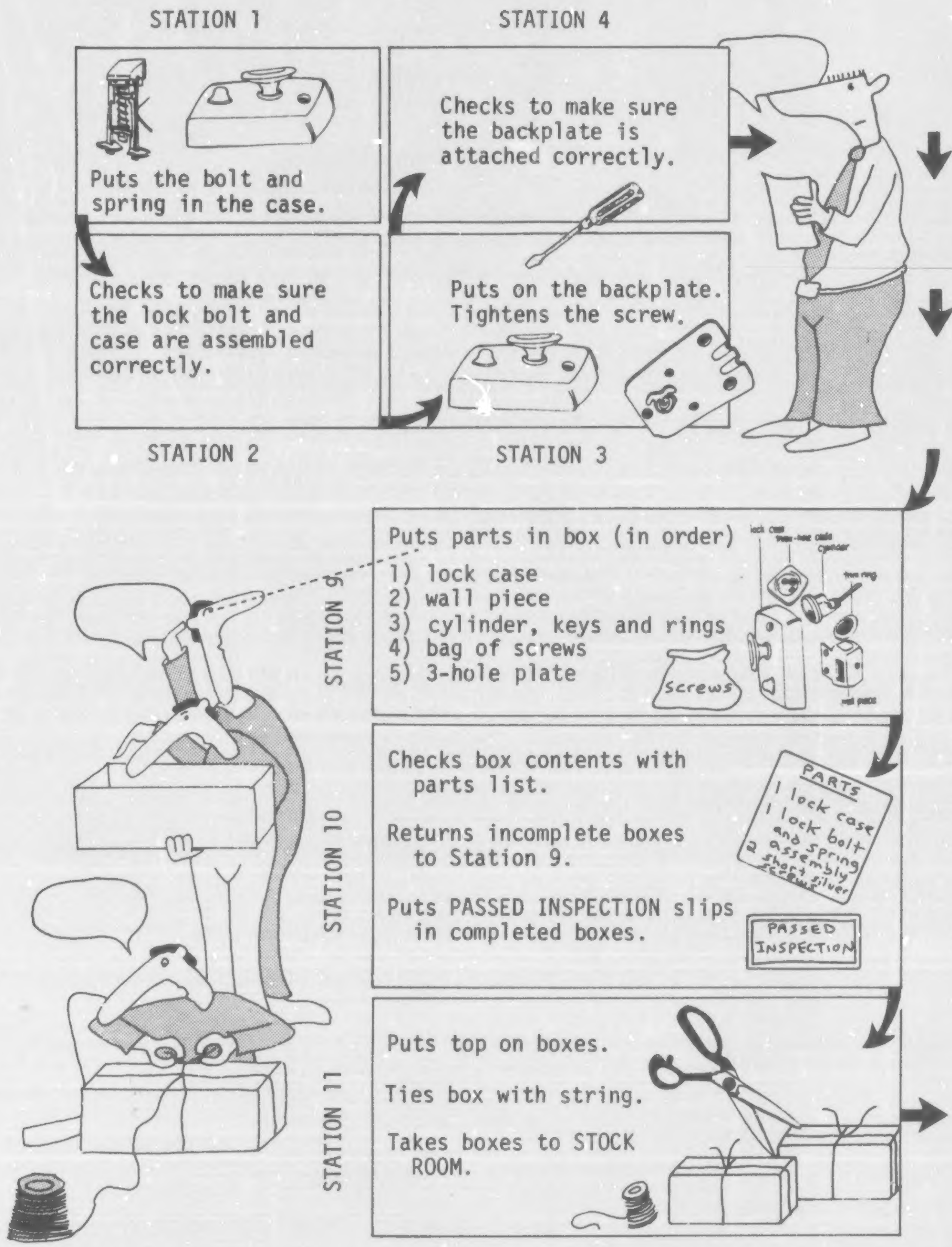
Supervisor	Employee
Get a lock case.	Like this?
Put this in here.	I don't understand. Do it again. Show me again.
What parts do you need?	I need (more) screws.
Did you check it? have any problems?	Yes/No. What's wrong here? I have a problem. Can you help me?
Does it work?	
It it OK now?	
Can you fix it? hurry up? slow down?	Sure. OK.

Instructions

- get/return
- put in/take out
- attach/tighten
- check/count
- give/take
- staple/fold
- tie/pack

Parts

- lock case
- lock bolt
- screws
  - long/short
  - gold/silver
- keys
- box
- this/that
- these/those


lock case
three-hole plate
cylinder
two rings
wall piece
Screws
PARTS
1 lock case
1 lock bolt and spring
2 assembly short silver screws
PASSED INSPECTION

STATION 1

Puts the bolt and spring in the case.

STATION 2

Checks to make sure the lock bolt and case are assembled correctly.

STATION 3

Puts on the backplate. Tightens the screw.

STATION 4

Checks to make sure the backplate is attached correctly.

STATION 9

Puts parts in box (in order)

1) lock case
2) wall piece
3) cylinder, keys and rings
4) bag of screws
5) 3-hole plate

STATION 10

Checks box contents with parts list.

Returns incomplete boxes to Station 9.

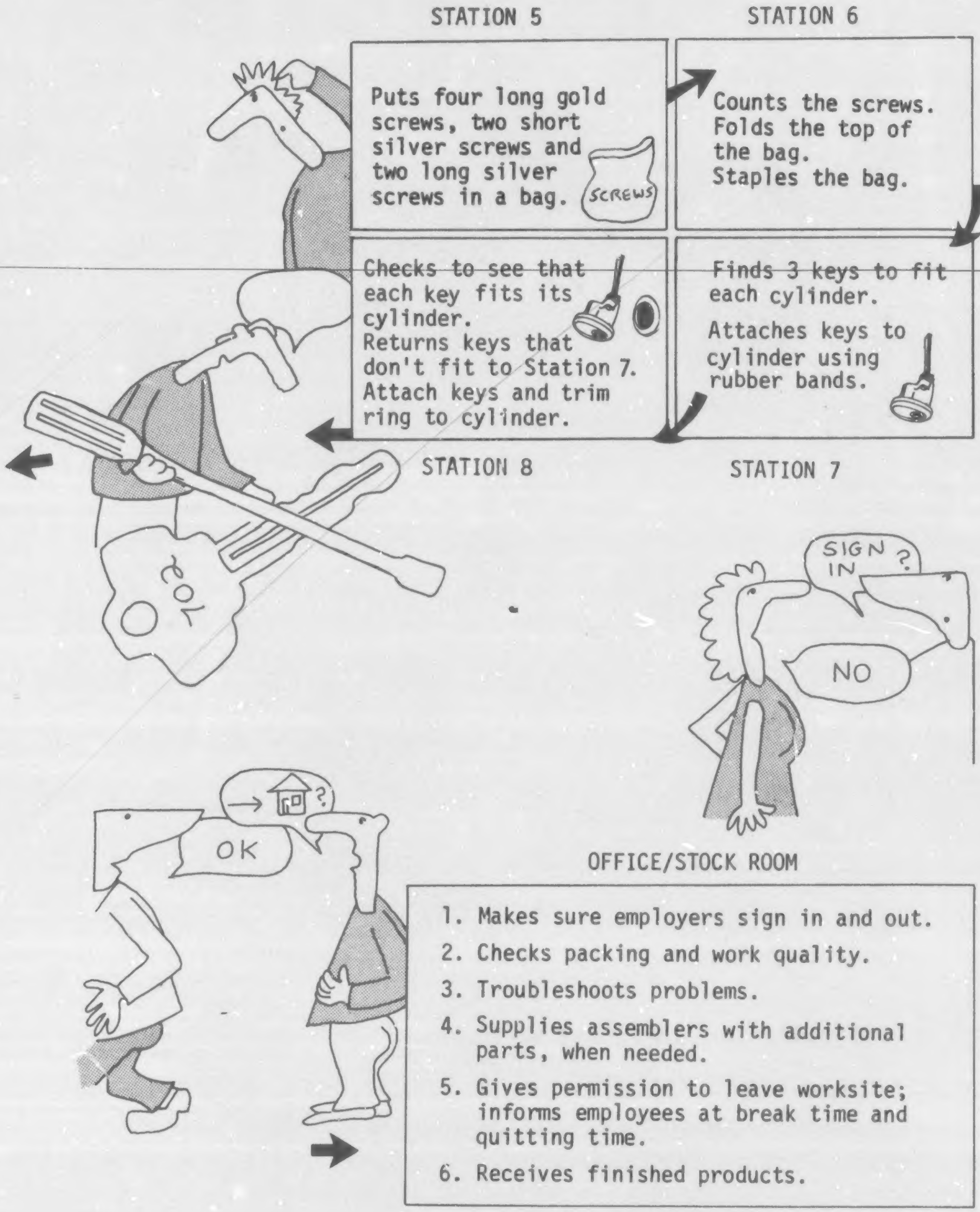
Puts PASSED INSPECTION slips in completed boxes.

STATION 11

Puts top on boxes.

Ties box with string.

Takes boxes to STOCK ROOM.



STATION 5

Puts four long gold screws, two short silver screws and two long silver screws in a bag.

STATION 6

Counts the screws.
Folds the top of the bag.
Staples the bag.

STATION 7

Finds 3 keys to fit each cylinder.

Attaches keys to cylinder using rubber bands.

STATION 8

Checks to see that each key fits its cylinder.
Returns keys that don't fit to Station 7.
Attach keys and trim ring to cylinder.

OFFICE/STOCK ROOM

1. Makes sure employers sign in and out.
2. Checks packing and work quality.
3. Troubleshoots problems.
4. Supplies assemblers with additional parts, when needed.
5. Gives permission to leave worksite; informs employees at break time and quitting time.
6. Receives finished products.

Interactions

1. Some work stations have inadequate and damaged materials.
2. A new order comes in to modify the packaging of locks (e.g. Station 5 must now use two bags per set).
3. An employee has to leave for a medical check. Others must fill in for her.
4. The supervisor brings an important visitor to the floor. Employees are introduced, shake hand with the visitor and tell her their names and jobs.
5. The supervisor gets very angry because one person filled in his time sheet incorrectly or comes back late from his break.
6. A worker is doing an especially good job.

Follow - up

JOBS. Have students describe the jobs they had. Provide a sample lock so students can partially reinact what they did. Ask them to describe any difficulties or successes they experienced.

INTERACTIONS. Refer to critical incidents that occurred. Ask students to role play what happened. Discuss. Or: Tell a short open-ended story that reflects a similar situation. Ask students to tell what they would do. What would be appropriate in their home country? In the U.S.?

SUPERVISORS. Have students write a "job description" for their supervisor, including what he/she is required to expect from employees.

MASS-PRODUCTION. Ask students to reflect on questions, such as:

How did it feel to work under a time deadline?
Did you "watch the clock"?

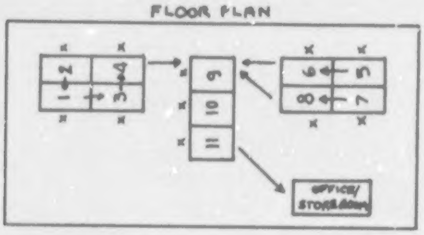
Did you have to send anything back to another station?
How did you feel? How did your co-workers feel?

What things are mass-produced? What are the benefits of mass-production? Would you like working in a factory?

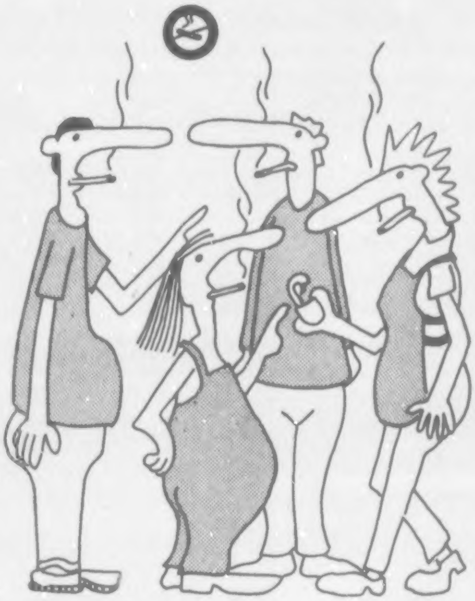
Notes

Preparation

Purchasing Locks. The locks you buy will be different in some ways from the one that is used here. The length, number and color of the screws, the shape of the wall piece, and details of the lock bolt and spring assembly are likely differences. You should experiment to see what mistakes it is possible to make when assembling it, so you can have appropriate stations in your assembly line to check for correct assembly.



Floor Plan. Adapt the floor plan to fit the size of your room and the number of desks and tables available. It can be prepared on chart paper or drawn on the blackboard.



Schedule. Give students practice reading a work schedule. Use actual class times. Substitute picture symbols for beginning level students.

Inspection. Prepare small slips of paper with "Passed Inspection" printed on them. You'll need one per lock set. The inspector also needs a list of the contents of a lock set. It can be designed in the form of a check list.

Signs. See the "Literacy" sections at the beginning of Units 3 and 4 for typical worksite signs. Post appropriate signs around the classroom (e.g. EXIT, NO SMOKING, OFFICE, STRONG ROOM).

Lounge. If possible set up a room outside the classroom as a worker's lounge. Add a coffee table, employee bulletin board, comfortable chairs, etc.

Activity

Employers often pair a refugee who speaks limited English with one who speaks English well, letting instructions be translated for the first few days on the job. A similar practice can be used on a limited basis during the simulation if a student is having trouble with his/her job. Discuss this practice during the follow-up.

Notes

Follow-up can take place partially or wholly in the native language. Otherwise, only English should be used during the simulation.

Refugee employers mention that refugees are often far more upset by a show of anger than other employees and have difficulty responding to direct criticism by a supersivor. In most activities, optimum learning occurs in a non-threatening environment. In this case, however, teacher-supersivors are encouraged to introduce potentially threatening situations. Processing the interactions can help students develop appropriate coping skills.

Language

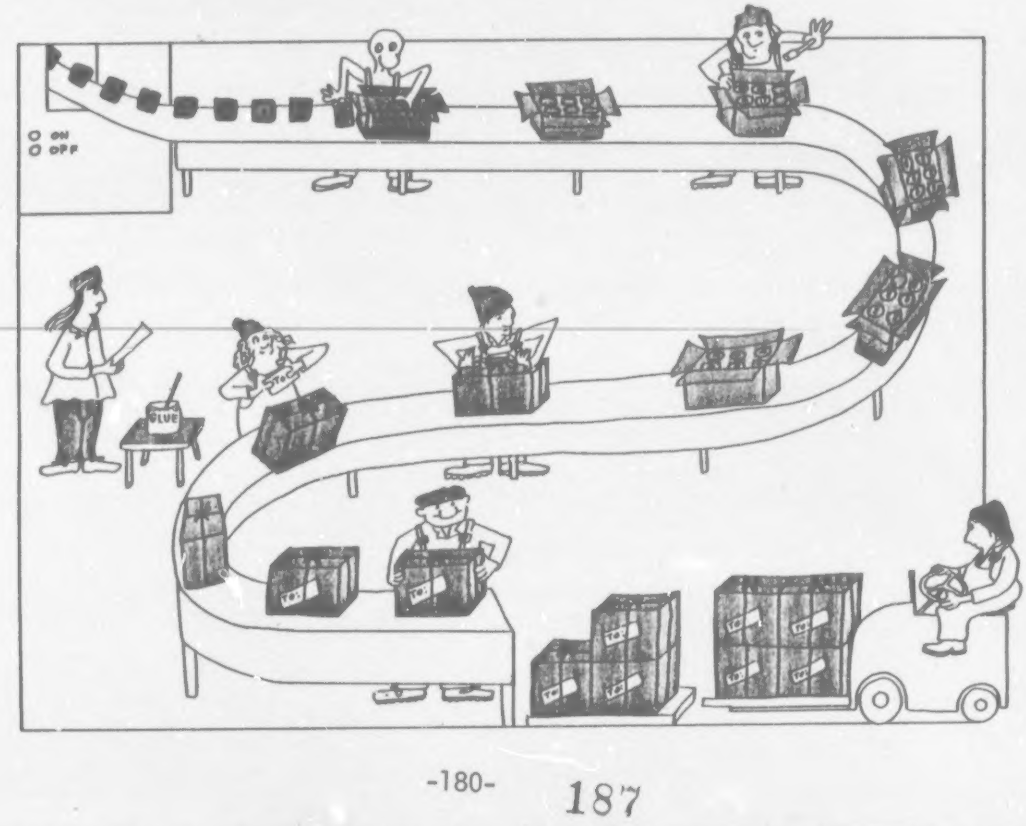
Everyday English. Supervisors should speak at a natural pace and use common workplace expressions. Check the "Everyday English" sections at the beginning of Units 3 and 4 for ideas.

Variations

No Locks. If it is not possible to find locks, substitute another simple device such as a mechanical toy, a clock or a small lamp.

Other Assembly Line Activities

Try making curtains, constructing math or spinner boards, soldering terminal boards, building something from PVC pipe or assembling metal shelves using this simulation format as a guide.

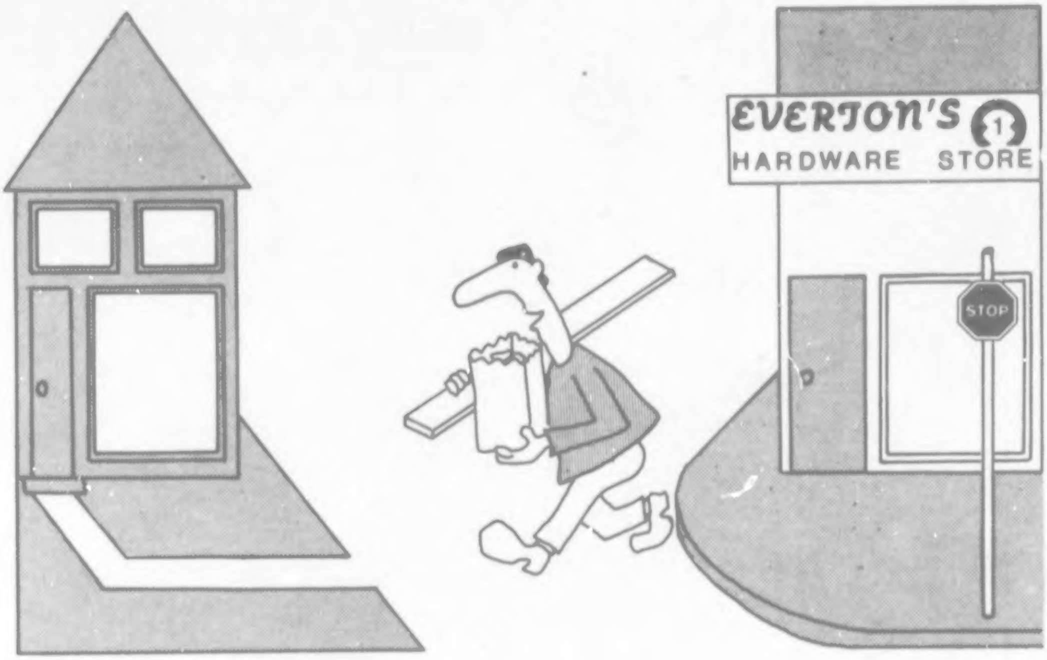


Planning

Planning

A Hardware Store Simulation

Home construction or repair projects often require a trip to a hardware store to purchase tools and parts. During two days leading up to this simulation students practice reading prices, verifying receipts and determining parts needed to make repairs. On the day of the simulation students become sales clerks, cashiers and customers. The teacher performs the role of store manager.



Purposes

- To identify tools and materials needed to complete a task.
- To request the right size, amount and type of item as a customer.
- To fill a request as a store employee.
- To read prices written using dollar signs and decimals.
- To use a calculator to determine totals.
- To read a receipt, count change and respond appropriately if the wrong change or wrong item is received.

Tools and Materials

Fill in the quantity of items needed to "stock" the store. Add or substitute other items used in previous classes.

For Sale

_____ tape measure
_____ crescent wrench
_____ hand saw
_____ hack saw
_____ saber saw
_____ hand drill
_____ square
_____ "C" clamp
_____ rasp
_____ file
_____ hammer
_____ screwdriver
_____ plug
_____ socket
_____ screw
_____ nail
_____ nut
_____ bolt
_____ bracket
_____ metal shelf pieces
_____ wood pieces
_____ lampcord
_____ lamp*
_____ metal shelf*
_____ chair*

Hardware Store Props

_____ time cards*
_____ door sign (with business hours)*
_____ sale or discount signs*
_____ paper bags

Prices and Money

_____ cash box or cash register
_____ pennies
_____ nickels
_____ dimes
_____ quarters
_____ dollars (various amounts)
_____ price tags (for each item)*
_____ cash receipt form*
_____ calculators

*preparation required before class.

Language

Making Change (Preparation 1)		
How much money do you have?	I have 5 dollars and 10 cents.	$5.10 $.01-$10.00
What do you want?	I want a hammer.	hammer rasp (assorted items)
What's the price?	It's 2 dollars.	
Give me 5 dollars.	Here.	
How much is your change?	It's 3 dollars.	give me show me count
Did you get the correct change?	Yes. No.	
How much should you get?	I should get 3 dollars and 10 cents.	

Preparations

These practice activities are suggested for days prior to the simulation. (Language for the preparations are listed in the boxes below and on page 178.)

Preparation 1: Making Change. Bring in American money and samples of the tools you'll use, each marked with a price. Give each student an amount of money and assist them to count it. Working in pairs, have students select a tool they want to purchase, read the price tag, pay for the tool and count their change.

Preparation 2: Receipts and Totals. Train students for the job of cashier. Practice recording the names and prices of tools on receipts. Use the calculator to find totals. (A sample receipt form is found in the Notes section.)

Preparation 3: What To Buy? Bring in items (e.g. a chair or lamp). Engage students in the process of deciding what tools or materials they would need to buy to fix each one. Assign some students to purchase these items as customers during the simulation.

Preparation 4: Dialogs. Assign remaining students to be cashiers or salespersons. Practice dialogs between employees and customers using the sample language on pages 180 and 181.

Language

Receipts and Tools (Preparation 2)

Fill in the receipt.
Write the name of each tool.
Write how many of each tool.
Add the sub-totals.
What's the total? It's 10 dollars and 20 cents.

What To Buy (Preparation 3)

Are you a customer?	Yes, I am.
What are you going to fix?	A lamp.
What do you need?	I need lampcord.

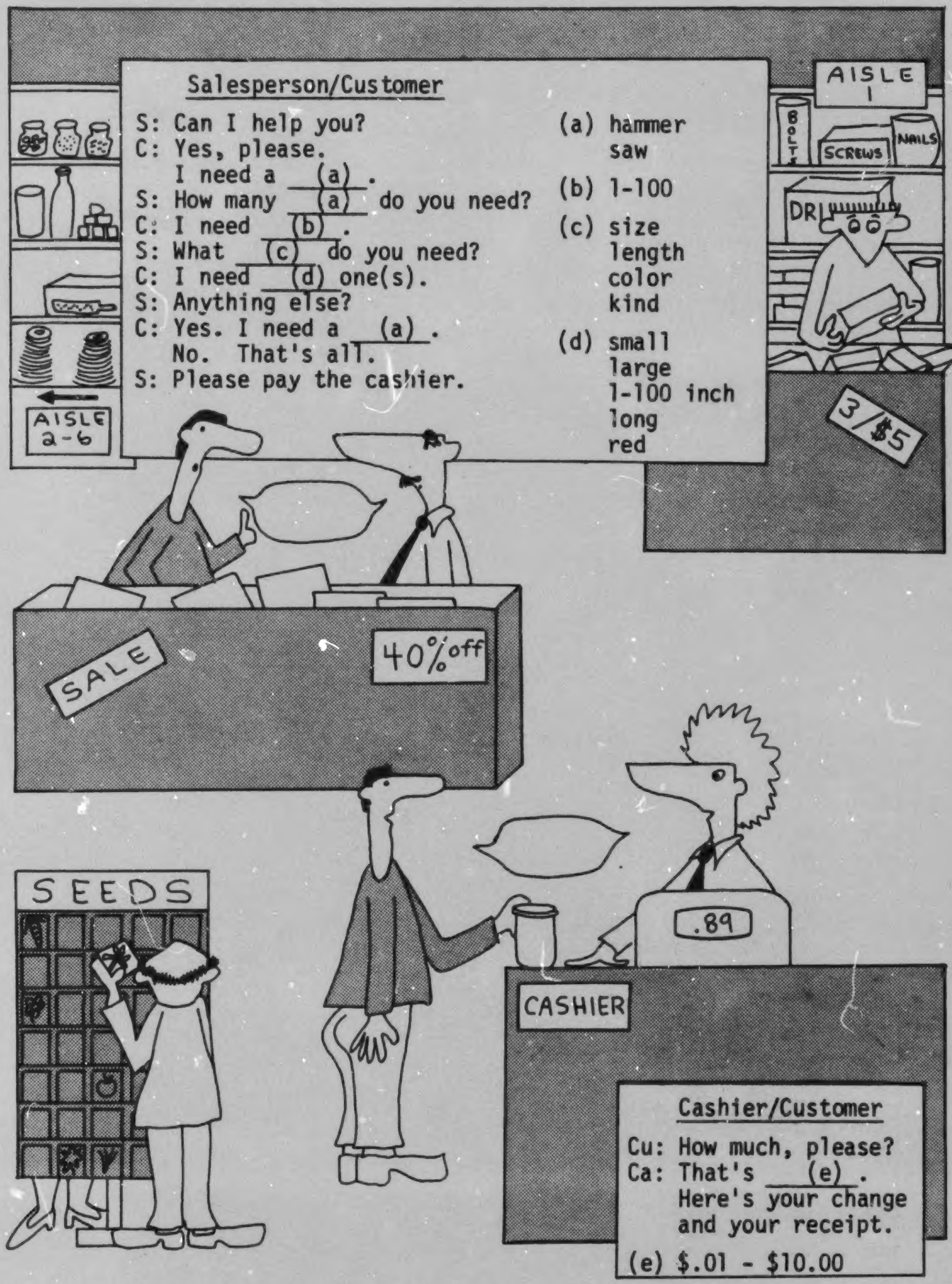
name
unit price

$ 9.20
$.01-$10.00

fix
make

lamp
chair
metal shelf

lampcord
hammer


AISLE 1
BOLTS
SCREWS
NAILS
DR
3/$5
AISLE 2-6
SALE
40% off
SEEDS
.89
CASHIER

Salesperson/Customer

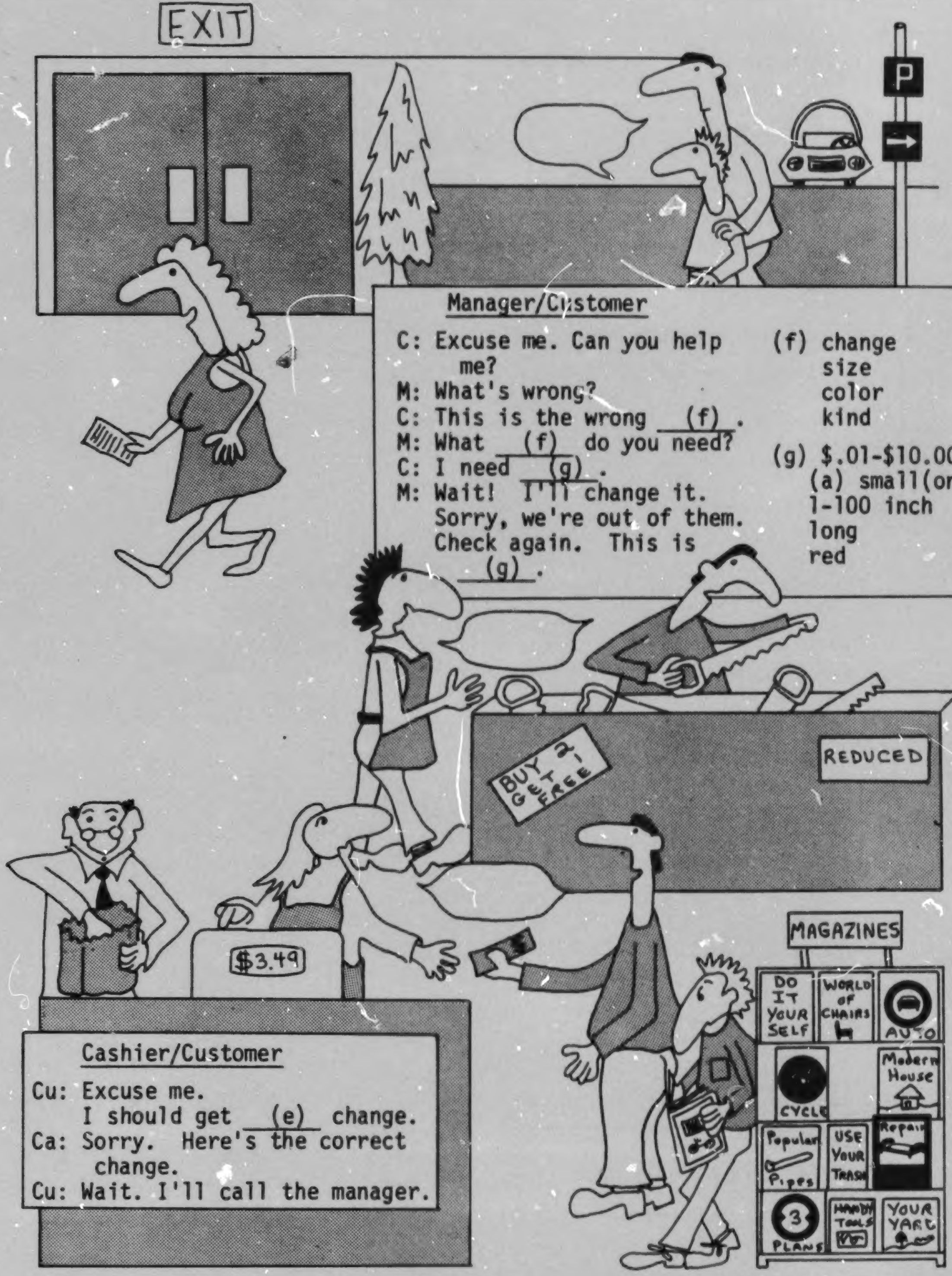
S: Can I help you?
C: Yes, please.
I need a (a).
S: How many (a) do you need?
C: I need (b).
S: What (c) do you need?
C: I need (d) one(s).
S: Anything else?
C: Yes. I need a (a).
No. That's all.
S: Please pay the cashier.

(a) hammer
saw
(b) 1-100
(c) size
length
color
kind
(d) small
large
1-100 inch
long
red

Cashier/Customer

Cu: How much, please?
Ca: That's (e).
Here's your change
and your receipt.

(e) $.01 - $10.00


EXIT
P
REDUCED
BUY 2 GET 1 FREE
$3.49
MAGAZINES
DO IT YOUR SELF
WORLD OF CHAIRS
AUTO
CYCLE
Modern House
Popular Pipes
USE YOUR TRASH
Repair
3 PLANS
HANDY TOOLS
YOUR YARD

Manager/Customer

C: Excuse me. Can you help me?
M: What's wrong?
C: This is the wrong (f).
M: What (f) do you need?
C: I need (g).
M: Wait! I'll change it.
Sorry, we're out of them.
Check again. This is (g).

(f) change
size
color
kind

(g) $.01-$10.00
(a) small(one)
1-100 inch
long
red

Cashier/Customer

Cu: Excuse me.
I should get (e) change.
Ca: Sorry. Here's the correct change.
Cu: Wait. I'll call the manager.

Interactions

1. A salesperson gives the wrong change.
2. A salesperson brings the wrong items to a customer.
3. The salesperson has sold the customer a damaged item.
4. A customer asks for a large number of items. The store doesn't have enough.
5. A salesperson doesn't understand a customer's English.
6. A customer gives the cashier a $100 bill and he/she doesn't have change.

Follow-up

ROLES. Have each person describe what happened to him/her during the simulation. What did he/she buy or sell? Did any particular problems occur? Was everyone able to successfully complete the sale?

INTERACTIONS. Refer to the critical incidents which occurred. Ask students to role play what happened. Were there other ways in which the problems could have been resolved? How did they feel when they had to report a problem to the store manager?

LANGUAGE. Ask students to describe any difficulties they had in communicating their needs in English. What can they do if they need to buy an item but cannot describe it in English? Could they bring in a picture of the item, ask a friend to write a description in English, use gestures or bring someone with them who could translate?

A GOOD BUY. Discuss ways to find the best item for the best price. How can one find sales or special prices? Compare prices of similar items listed in newspaper ads and mail order catalogs.

QUALITY OR PRICE? Bring in several brands of a tool, each marked with a different price. Is the cheapest tool always the best buy?

BARGAINING. Were students able to bargain with a salesperson in their home countries? Can one bargain in an American store? Discuss.

TAXES. Sales tax of up to 7% is charged for non-food items. Have students calculate the amount of sales tax for various totals.

Notes

Preparation.

Price Tags. Consult a hardware store catalog for typical prices of tools and materials; mark the price on each item. For beginning students prices can be simplified by using only whole dollar amounts. Challenge more advanced students by offering special bargains. Label each item with a code number.

Signs. Prepare signs, such as a door sign listing the hours when the store is open, signs describing sales and discounts and other workplace signs which are appropriate.

Receipts. Receipt forms can vary depending on the level of your students. Beginners could write code names instead of the names of the tools. More advanced students can be asked to write in the name of each tool, a unit price, a subtotal and calculate tax. Prepare enough receipts to use during practices as well as for the simulation itself.

RECEIPT			
Item	No	Unit Price	Sub-Total
Z407-1	1	$2.00	$2.00
A108-3	2	$1.00	$2.00
H7034-8	4	$3:00	$12.00
		TOTAL	$16.00

Activity.

The activity is more fun (and more manageable for the teacher) if one or more native speakers participate. Ask them to draw upon their own experiences to think of other ways to make the simulation realistic. Encourage them to allow students to make mistakes.

Language.

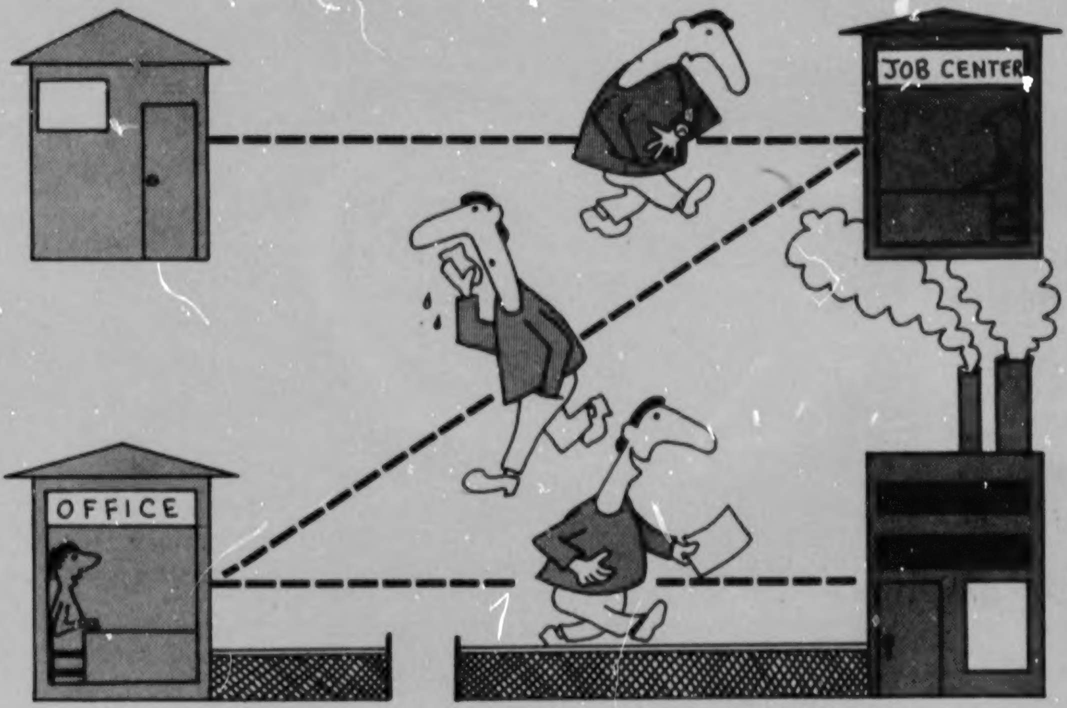
Natural Communication. It is impossible to predict the language students will hear in a hardware store. Vary the language you use to give students practice decoding unfamiliar sentences. For example, a salesperson might say, "What can I do for you?" or "Do you need some help?", instead of "Can I help you?".

Beginning Students. It may be necessary for the teacher and visitors to perform the roles of cashier and salesperson with beginning students. The quantity and variety of tools can also be reduced to simplify the language required.

Planning

A Job Interview Simulation

This simulation requires a large room which can be divided into five stations and English speakers who can work at each station. Students begin their job search by reading want ads posted at the "employment office." They meet with a job counselor, fill out an application and go to a "work site" to interview for a job. When they finish teachers help them evaluate their interviewing skills.



- To identify entry-level jobs for which one is qualified from among a group of want ads.
- To provide information about one's skills, job history and educational experience.
- To fill out a job application.
- To provide information when applying for a job.
- To ask questions about a potential job.
- To discuss ways in which one can improve his/her interviewing skills.

Tools and Materials

Each station should have at least one table and chairs for teachers and students, paper and pencils or pens.

Station 1

sample want ads*
pictures of entry-level jobs*

Station 2

job skills inventory*

Station 3

job application forms*
wall chart (with sample application)*

Station 4

interviewer questions

Station 5

interview evaluation form*

Props (optional)

worksite signs*
e.g. ENTRANCE
EXIT
NO SMOKING
OFFICE

ashtrays

telephones
telephone books

magazines (for waiting area)

clock

*preparation required before class.

Preparations

This simulation is best done together with Culture Orientation and English as a Second Language teachers who have prepared students for job interviews during previous classes. If your program does not offer these classes, several preparation activities will be needed. Below are a few suggestions:

- Acquaint students with common entry-level jobs using pictures, slides or video tapes.
- Have students draw pictures of themselves in their occupations in their country, and describe their skills.
- Ask them to describe the tools they have learned to use in class, the skills they've acquired.
- Have students name jobs they think they'd like and why they are qualified. Fill out sample application forms.
- Practice interview language through role plays and picture stories.

Language : Station 1

Counselor

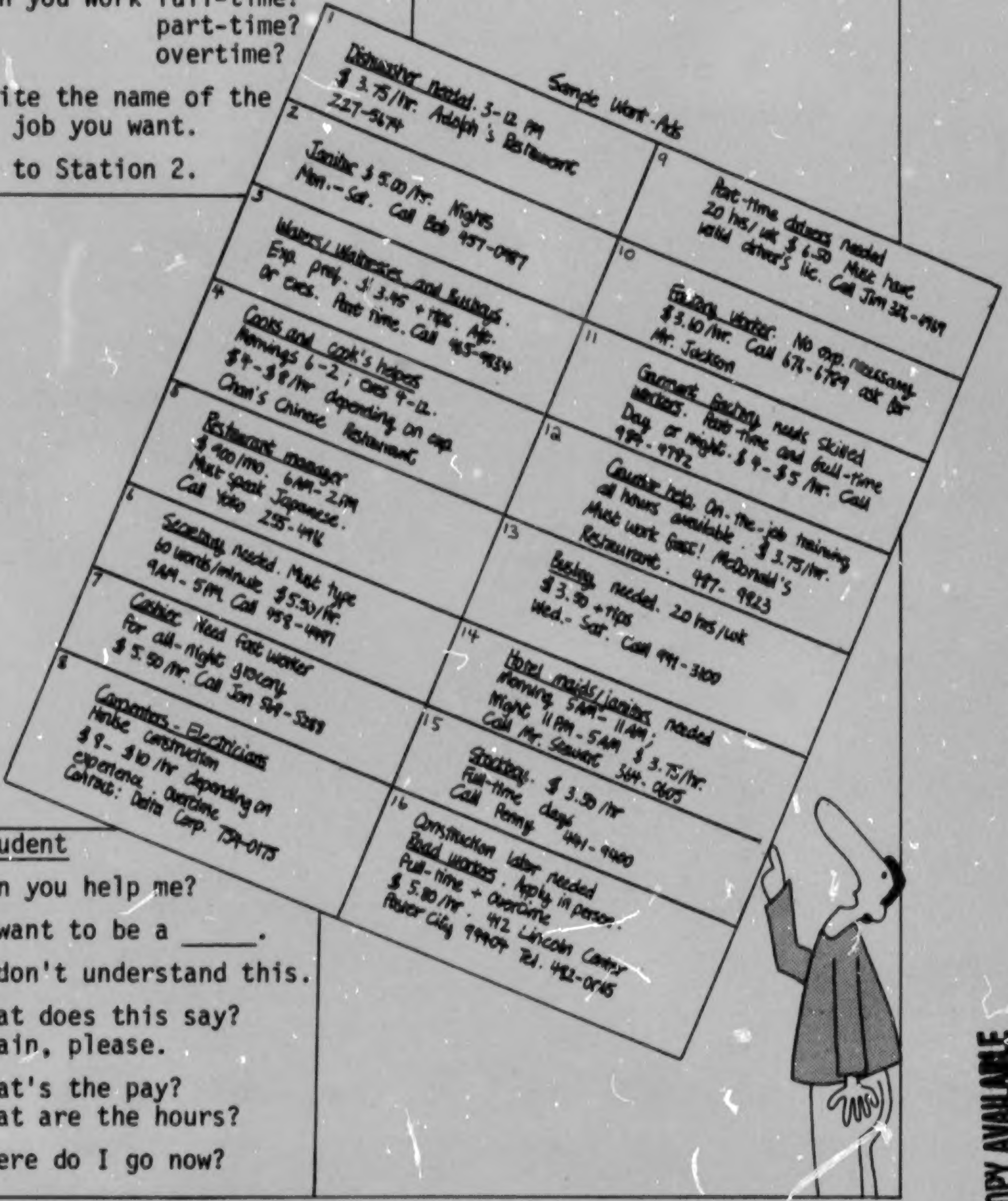
Read the want ads.

What kind of job do you want?

Can you work full-time?
part-time?
overtime?

Write the name of the job you want.

Go to Station 2.



Sample Want-Ads

1 Dishwasher needed. 3-12 PM
$3.75/hr. Adolph's Restaurant
227-5674

2 Janitor $5.00/hr. Nights
Mon.-Sat. Call Bob 457-0987

3 Waiters/Waitresses and Busboys.
Exp. pref. $3.45 + tips. Aft.
or eves. Part time. Call 485-4834

4 Cooks and cook's helpers
Mornings 6-2; eves 4-12.
$4-$8/hr depending on exp.
Chan's Chinese Restaurant

5 Restaurant manager
$900/mo. 6AM-2PM
Must speak Japanese.
Call Yoko 255-4916

6 Secretary needed. Must type
60 words/minute $5.50/hr.
9AM-5PM. Call 459-4997

7 Cashier Need fast worker
for all-night grocery
$5.50/hr. Call Jon 514-5389

8 Carpenters - Electricians
Hinbe construction
$9-$10/hr depending on
experience. Overtime
Contract: Delta Corp. 754-0175

9 Part-time drivers needed
20 hrs/wk $6.50 Must have
valid driver's lic. Call Jim 321-4989

10 Factory worker. No exp. necessary.
$3.60/hr. Call 671-6789 ask for
Mr. Jackson

11 Garment factory needs skilled
workers. Part-time and full-time
Day or night. $4-$5/hr. Call
984-4792

12 Counter help. On-the-job training
all hours available. $3.75/hr.
Must work fast! McDonald's
Restaurant. 497-9823

13 Busboy needed. 20 hrs/wk
$3.50 + tips
Wed.-Sat. Call 491-3100

14 Hotel maids/janitors needed
Morning 5AM-11AM;
Night 11PM-5AM $3.75/hr.
Call Mr. Stewart 344-0605

15 Stockboy. $3.50/hr
Full-time days
Call Penny 441-9400

16 Construction labor needed
Road workers. Apply in person.
Full-time + overtime
$5.80/hr. 412 Lincoln Center
River City 99404 Tel. 482-0745

Student

Can you help me?

I want to be a _____.

I don't understand this.

What does this say?
Again, please.

What's the pay?
What are the hours?

Where do I go now?

BEST COPY AVAILABLE

Language : Station 2

STATION 3

Job Counselor

Did you see the want ads?
What job do you want?

Can you _______________
skills required for job?

What did you do in your country?
What other skills do you have?

Do you know the hours?
pay?
address of the job?

Go to Station 3.
Fill out an application.

Sorry. You don't have the skills for the job.
Go back.
Pick a new job.

Student

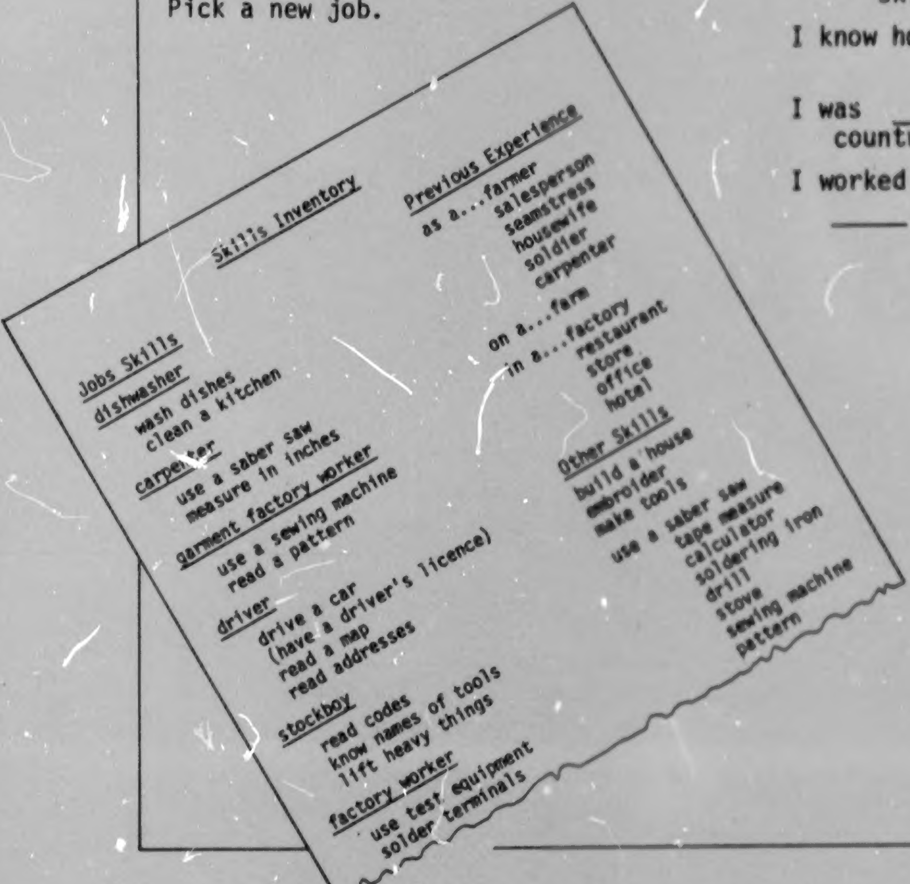
I want to be a _____.

I can _______________
skills required for job

I know how to _______________.
other skills

I was __________ in my country.

I worked in a _____ for _____ years.



Skills Inventory

Jobs Skills

dishwasher
- wash dishes
- clean a kitchen

carpenter
- use a saber saw
- measure in inches

garment factory worker
- use a sewing machine
- read a pattern

driver
- drive a car
- (have a driver's licence)
- read a map
- read addresses

stockboy
- read codes
- know names of tools
- lift heavy things

factory worker
- use test equipment
- solder terminals

Previous Experience

as a...farmer
- salesperson
- seamstress
- housewife
- soldier
- carpenter

on a...farm

in a...factory
- restaurant
- store
- office
- hotel

Other Skills

build a house
embroider
make tools

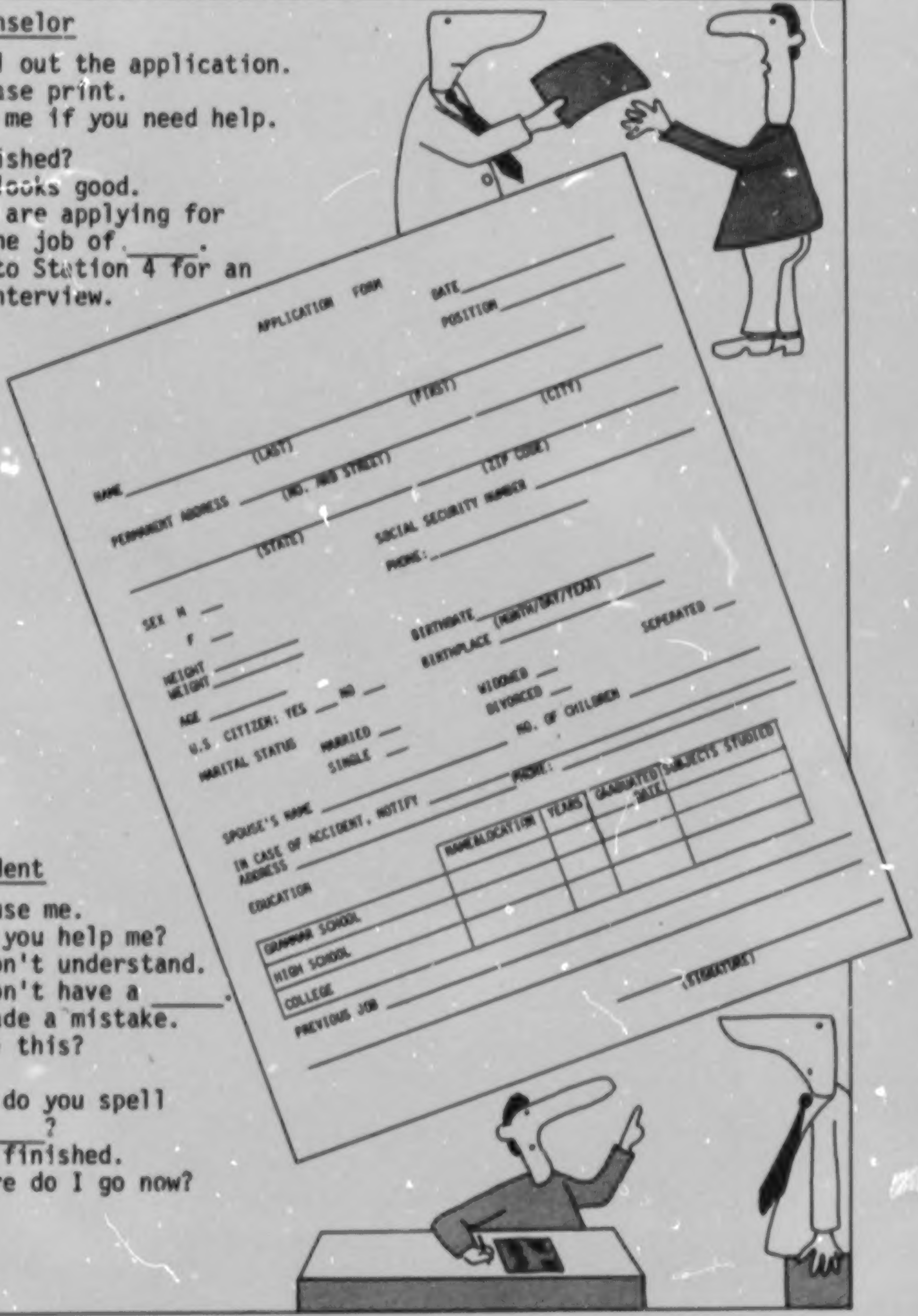
use a saber saw
- tape measure
- calculator
- soldering iron
- drill
- stove
- sewing machine
- pattern

Language : Station 3

Counselor

Fill out the application.
Please print.
Ask me if you need help.

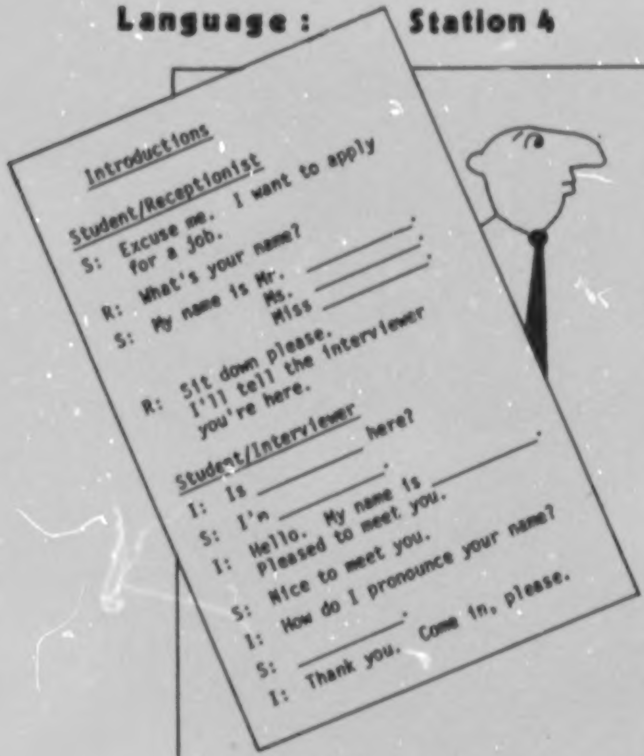
Finished?
It looks good.
You are applying for
the job of _____.
Go to Station 4 for an
interview.


APPLICATION FORM
DATE
POSITION
NAME
(LAST)
(FIRST)
PERMANENT ADDRESS
(NO. AND STREET)
(CITY)
(STATE)
(ZIP CODE)
SOCIAL SECURITY NUMBER
PHONE:
SEX M
F
HEIGHT
WEIGHT
AGE
U.S. CITIZEN: YES
NO
MARITAL STATUS
MARRIED
SINGLE
BIRTHDATE
(MONTH/DAY/YEAR)
BIRTHPLACE
WIDOWED
DIVORCED
SEPERATED
NO. OF CHILDREN
SPOUSE'S NAME
PHONE:
IN CASE OF ACCIDENT, NOTIFY
ADDRESS
EDUCATION
NAME&LOCATION
YEARS
GRADUATED DATE
SUBJECTS STUDIED
GRAMMAR SCHOOL
HIGH SCHOOL
COLLEGE
PREVIOUS JOB
(SIGNATURE)

Student

Excuse me.
Can you help me?
I don't understand.
I don't have a _____.
I made a mistake.
Like this?
OK?
How do you spell
_____?
I'm finished.
Where do I go now?

Language : Station 4



Introductions

Student/Receptionist

S: Excuse me. I want to apply for a job.
R: What's your name?
S: My name is Mr. ________.
Ms. ________.
Miss ________.
R: Sit down please.
I'll tell the interviewer you're here.

Student/Interviewer

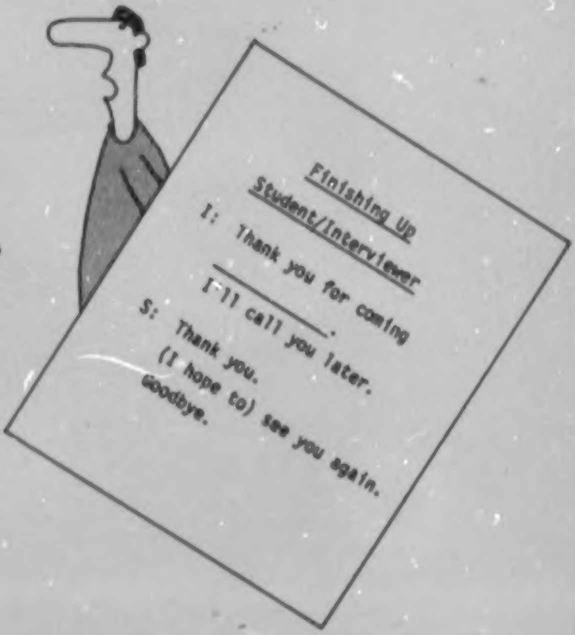
I: Is ________ here?
S: I'm ________.
I: Hello. My name is ________.
Pleased to meet you.
S: Nice to meet you.
I: How do I pronounce your name?
S: ________.
I: Thank you. Come in, please.

Interviewer Questions

What job are you applying for?
Do you have an application?
Where did you hear about this job?
Do you want a full-time or a part-time job?
Do you have experience as a ____?
Have you ever been a ________?
worked as a ____?
worked in a ____?
(If yes) How much experience do you have?
How long?
Have you had any job training?
Can you ____________________?
(skills necessary for the job)
How long were you a ____________?
How many years did you go to school?
What languages do you speak?
Where did you study English?
learn
When are you available to work?
Can you work overtime?

Student Questions

Do you have any openings?
What hours do I work?
When
How much do you pay?
I get paid?
What are the benefits?
What should I wear?
Do I have to wear a uniform?
Is there a bus stop near here?
Do I have to work nights?
days?
weekends?
overtime?
Could you speak more slowly?
Can you repeat that, please?



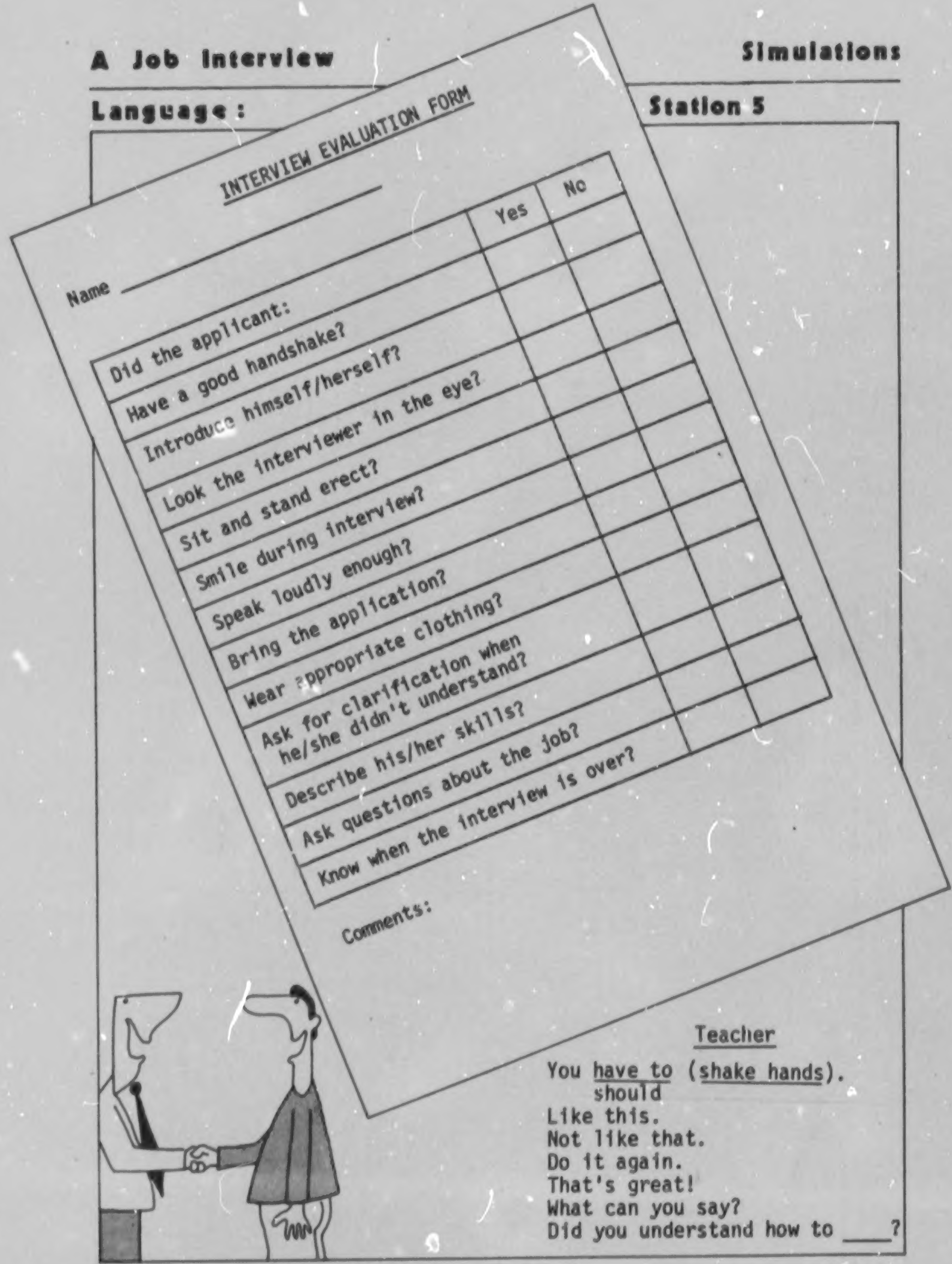
Finishing Up

Student/Interviewer

I: Thank you for coming ________.
I'll call you later.
S: Thank you.
(I hope to) see you again.
Goodbye.

Language:

Station 5



INTERVIEW EVALUATION FORM

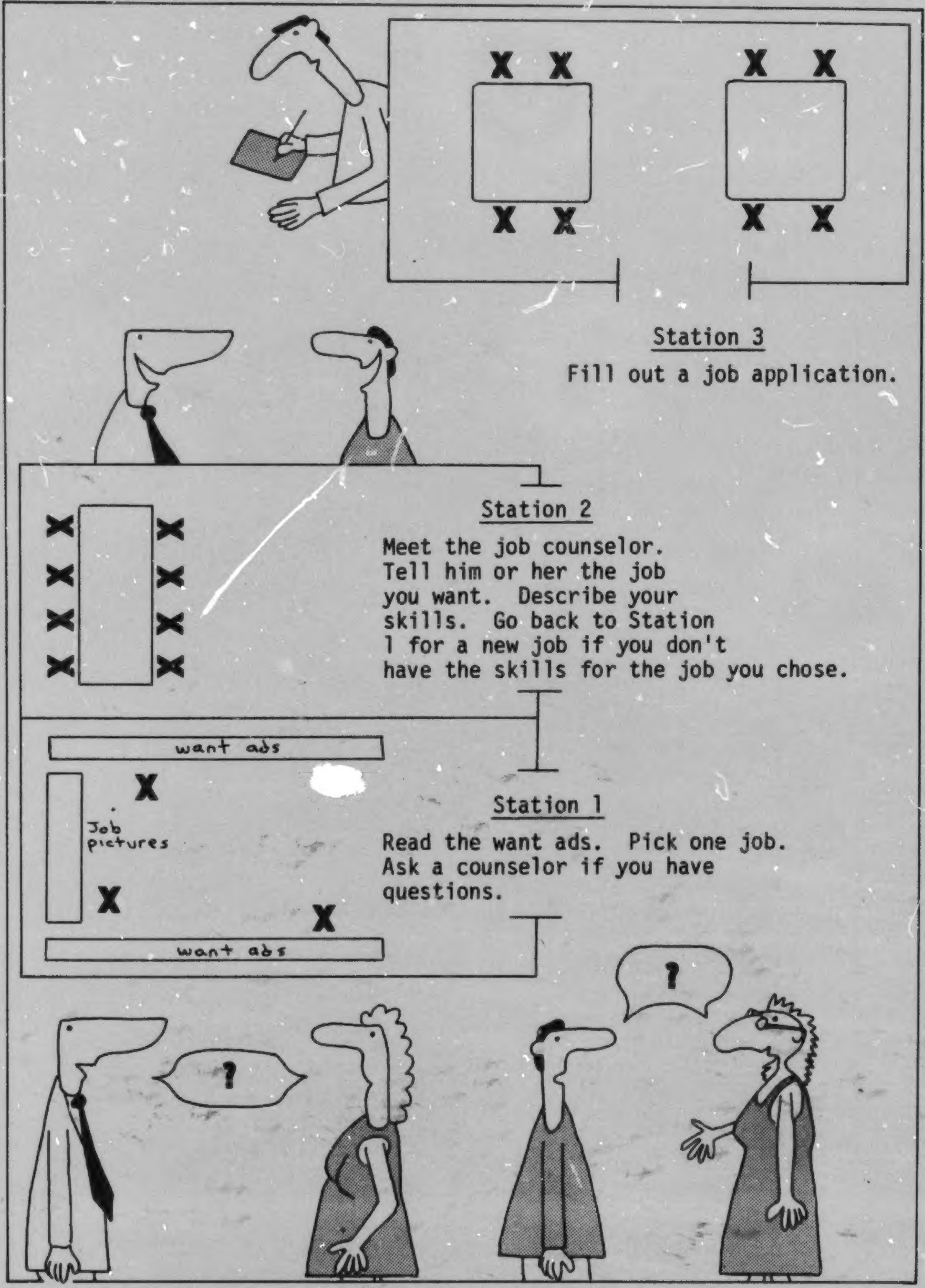
Name ____________

	Yes	No
Did the applicant:		
Have a good handshake?		
Introduce himself/herself?		
Look the interviewer in the eye?		
Sit and stand erect?		
Smile during interview?		
Speak loudly enough?		
Bring the application?		
Wear appropriate clothing?		
Ask for clarification when he/she didn't understand?		
Describe his/her skills?		
Ask questions about the job?		
Know when the interview is over?		

Comments:

Teacher

You have to (shake hands).
should
Like this.
Not like that.
Do it again.
That's great!
What can you say?
Did you understand how to ____?



Station 3

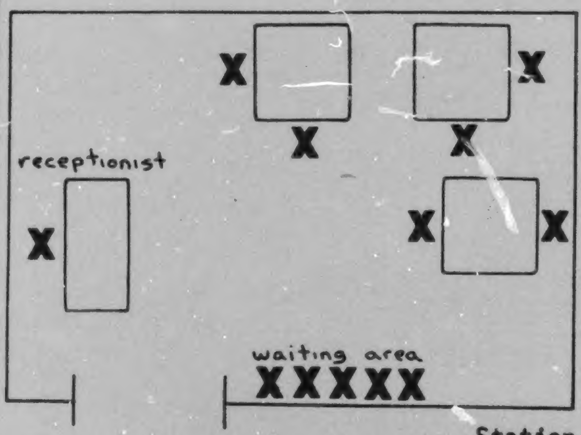
Fill out a job application.

Station 2

Meet the job counselor. Tell him or her the job you want. Describe your skills. Go back to Station 1 for a new job if you don't have the skills for the job you chose.

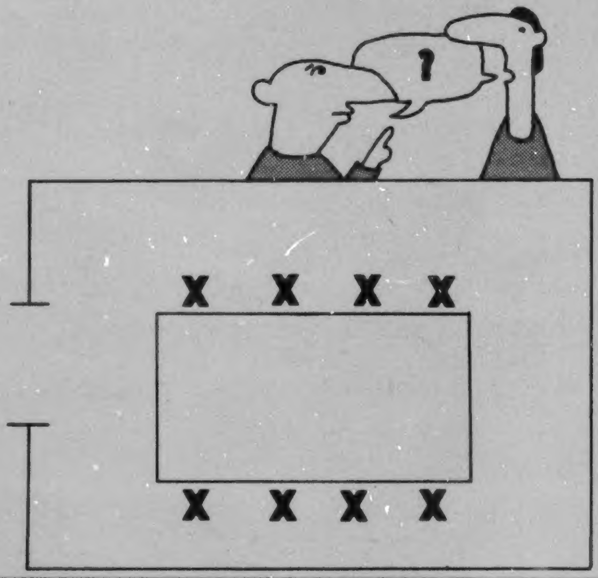
Station 1

Read the want ads. Pick one job. Ask a counselor if you have questions.


X X X X
receptionist
X
X X
waiting area
XXXXX

Station 4

Ask the receptionist for an interview.
Give your application to the receptionist.
Wait for the interviewer.
Have an interview.
Take your interview form and and application to Station 5.



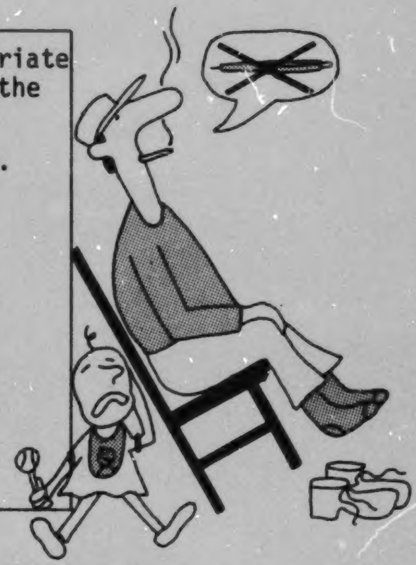
Station 5

Meet with your teacher. Talk about what you learned, and ways you can improve your interviewing skills.

Interactions

Prepare cards naming or illustrating inappropriate interview behavior. Have one student follow the instruction on the card to see what happens.

1. Smoke a cigarette during the interview.
2. Chew gum.
3. Bring your baby and two friends along.
4. Speak very slowly and avoid looking at the interviewer.
5. Forget to bring a pen.
6. Arrive very late.
7. Come to the interview after having a few beers with your friends.



Follow-up

Roles. Ask students to describe parts of the simulation for which they felt well prepared; areas where they need more practice.

Interactions. What happened when students acted out inappropriate behavior such as arriving late or smoking during the interview. Can students name any other behavior which would unacceptable? Role play a "joke" interview where an applicant does everything wrong.

Availability of Jobs. Explain that students will not always be able to choose the jobs they would like, they may have to take whatever jobs are available. Ask students to describe experiences friends or family members have had looking for jobs and/or being unemployed.

Want-Ads. Reading want ads at an employment office is only one way to find a job. Discuss other ways: e.g. asking friends, sponsors or refugee organizations for referrals, answering ads in the newspaper, going directly to the work site.

Brainstorm. Have students make a list of things they should bring with them to the interview: I-94 and social security cards, an address and phone number where they can be reached, etc.

Preparation

Space. A large auditorium-sized room is the optimum place to hold this simulation.

Job Application. An 8½" x 11" version of the job application is located in the Appendix: Handouts.

Other Forms. Produce sample want ads and skills inventory forms which reflect the jobs available in your area and the background of your students.

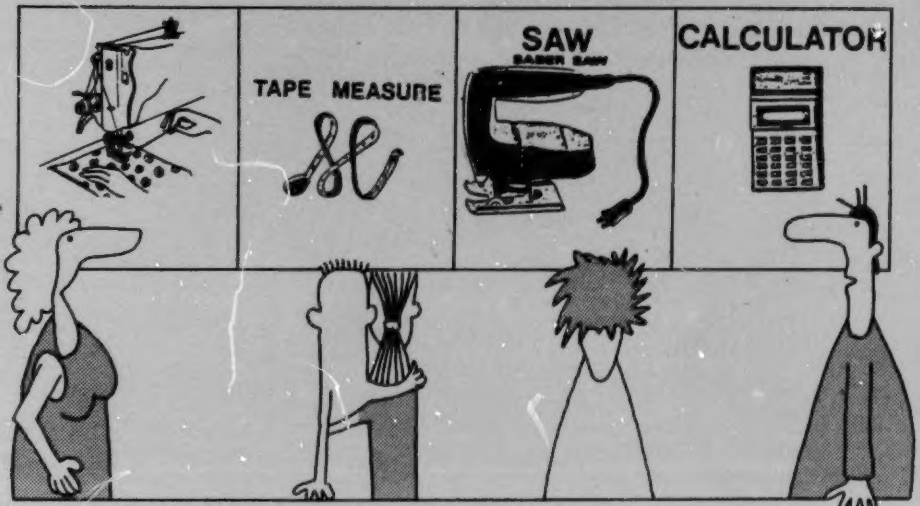
Resources. Consult Opening Lines (The Experiment in International Living, 1983), A Cultural Orientation Resource Manual (Center for Applied Linguistics, Washington, D.C., 1982) and other pre-vocational texts for additional language, sample forms and preparation activities.

Interviews. Orient teachers and visitors who will play the roles of job counselor and interviewer. If possible, have a "trial run" of the simulation; brainstorm techniques to encourage students to initiate questions. Several classes can be combined so more teachers are available to help out.

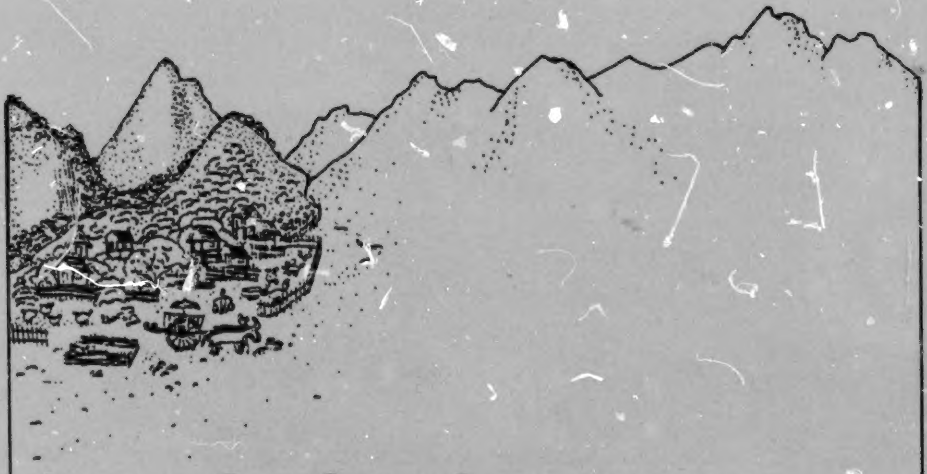
Language

Beginning Students. Substitute pictures of jobs for written want ads at Station 1; create a simplified version of the job application form.

Picture Cues. Illustrations of tools and materials can be provided at Station 2 to help students describe their skills.

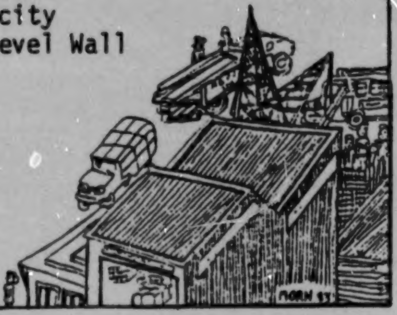


Planning



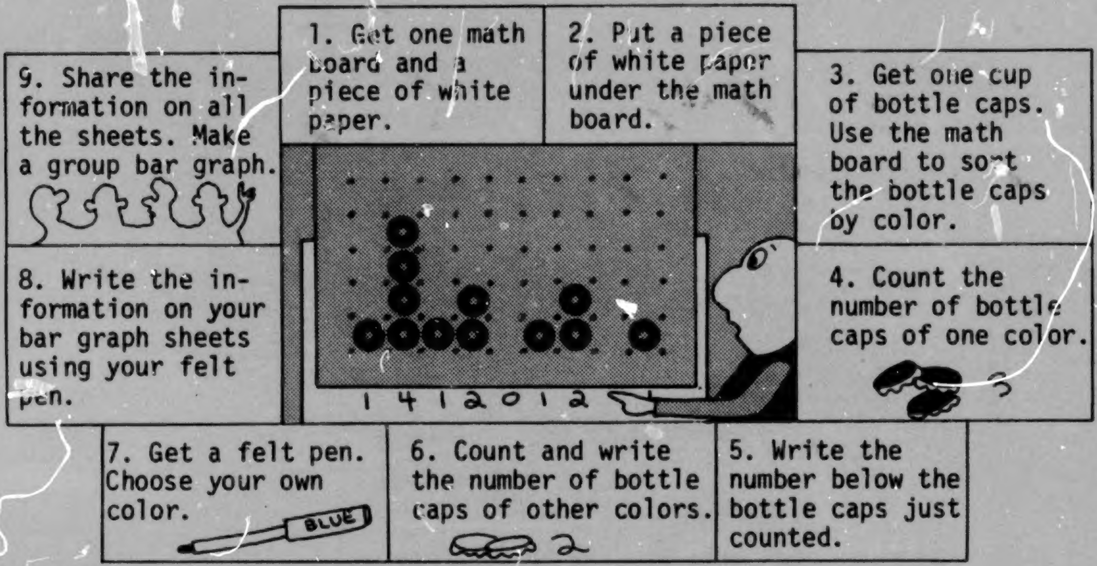
Optional Lessons

1. Sorting By Color
2. Making A Survey
3. Making A Paper Airplane
4. Making Ice Cream
5. Making A Flashlight
6. Ironing A Shirt
7. Making A Toy
8. Making A Chair
9. Making A Lampbase
10. Painting A Lampbase
11. Making A Wire Frame
12. Making A Lampshade
13. Assembling A Lamp
14. Assembling A Door Lock
15. Changing A Tire
16. Auto Maintenance
17. Auto Electricity
18. Building A Level Wall
19. Rube
20. PETathalon



Optional Lesson — Sorting By Color

This lesson gives students practice sorting objects by color, counting and recording information on a bar graph.



1. Get one math board and a piece of white paper.
2. Put a piece of white paper under the math board.
3. Get one cup of bottle caps. Use the math board to sort the bottle caps by color.
4. Count the number of bottle caps of one color.
5. Write the number below the bottle caps just counted.
6. Count and write the number of bottle caps of other colors.
7. Get a felt pen. Choose your own color.
8. Write the information on your bar graph sheets using your felt pen.
9. Share the information on all the sheets. Make a group bar graph.

Note: To sort the bottle caps on the math board, put the bottle caps in the spaces between the nails.

Decide if the color of pen chosen should be related to the person or to the color of bottle caps being recorded.

Tools and Materials

containers (for bottle caps)	1 per class
bottle caps (5 colors)	450 per class
bar graphs (newsprint)*	5 per class
pencils	1 each
felt pens (10-15 colors)	
math boards	
cups	
white paper	

*preparation required before class.

Language

What (color) do you have?

A bottle cap.
A blue bottle cap.

How many (blue) bottle caps do you have?

8.
8 blue bottle caps.

Who has (8) blue bottle caps?

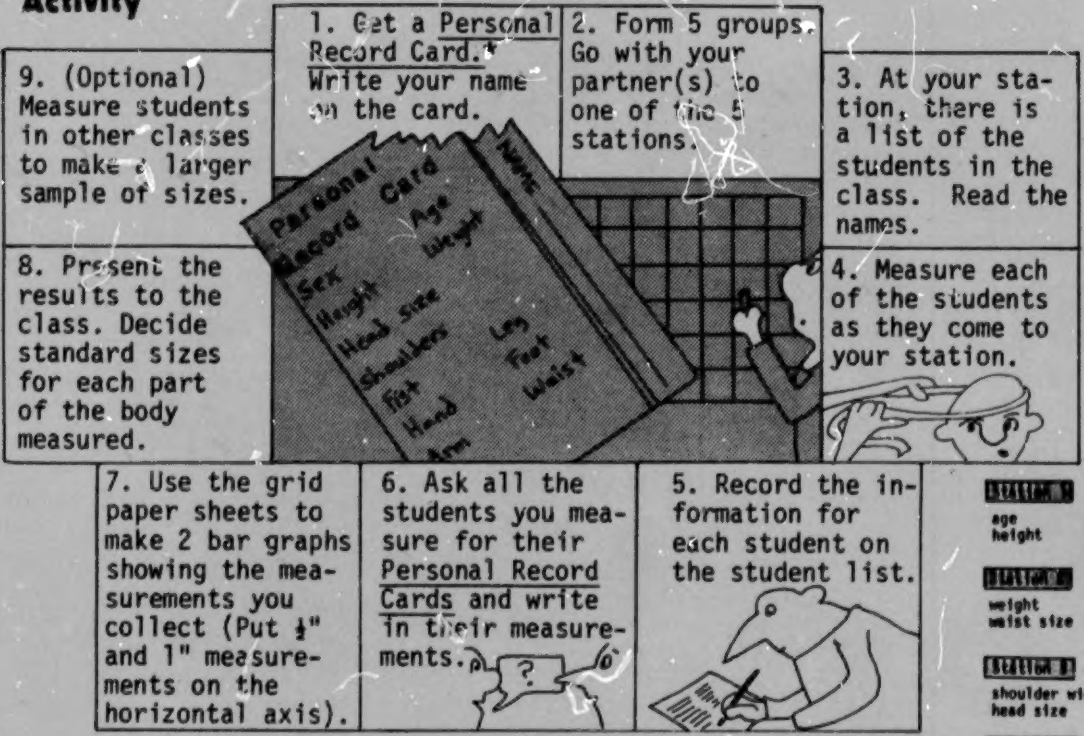
I do.
We
They

He does.
She

Who has more ____?
the most

This lesson gives students practice measuring, recording results on a bar graph and determining standard sizes.

Activity



1. Get a Personal Record Card.* Write your name on the card.

2. Form 5 groups. Go with your partner(s) to one of the 5 stations.

3. At your station, there is a list of the students in the class. Read the names.

4. Measure each of the students as they come to your station.

5. Record the information for each student on the student list.

6. Ask all the students you measure for their Personal Record Cards and write in their measurements.

7. Use the grid paper sheets to make 2 bar graphs showing the measurements you collect (Put ½" and 1" measurements on the horizontal axis).

8. Present the results to the class. Decide standard sizes for each part of the body measured.

9. (Optional) Measure students in other classes to make a larger sample of sizes.

Station 1
age
height

Station 2
weight
waist size

Station 3
shoulder width
head size

Station 4
fist size
hand length

Station 5
leg length
foot length

Note: It may be necessary to review units of measurement and the names of parts of the body before the lesson.

Decide beforehand how the students will move from station to station.

*The information on the Personal Record Cards can be used to sort sizes, ages, sexes, etc. The cards themselves can be used to create a bar graph when taped to the blackboard or a wall (before Step 7).

Tools and Materials

per class

- pencils
- 10 rulers
- 20 sheets of grid paper (½" sq.)
- 5 tape measures
- 1 roll of string
- 1 flour scale
- 2 pairs of scissors
- 1 large demonstration grid paper

Language

How long / wide / big is your ______?

How tall / old are you?

How much do you weigh?

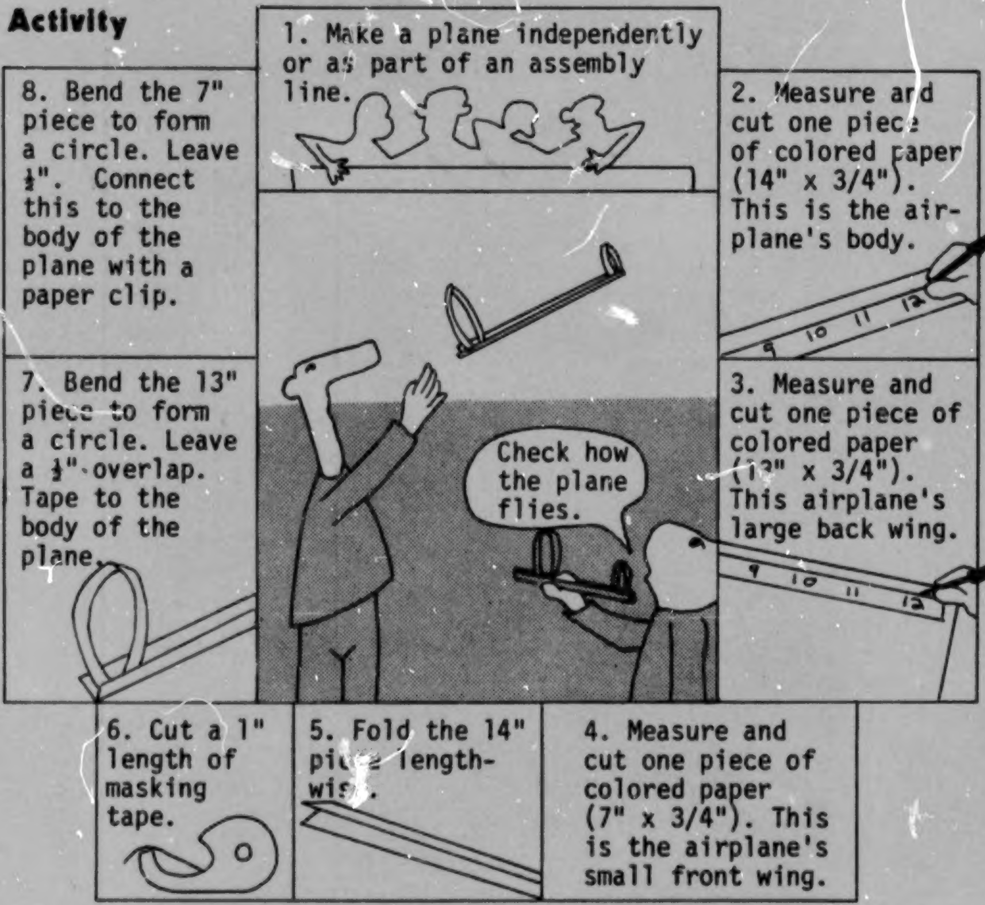
How many inches / pounds (are there)?

What is the largest / smallest measurement?

Optional Lesson Making a Paper Airplane

Making a paper airplane gives students additional experience working with measurements and following directions.

Activity


Check how the plane flies.
9
10
11
12

1. Make a plane independently or as part of an assembly line.
2. Measure and cut one piece of colored paper (14" x 3/4"). This is the airplane's body.
3. Measure and cut one piece of colored paper (13" x 3/4"). This airplane's large back wing.
4. Measure and cut one piece of colored paper (7" x 3/4"). This is the airplane's small front wing.
5. Fold the 14" piece lengthwise.
6. Cut a 1" length of masking tape.
7. Bend the 13" piece to form a circle. Leave a ½" overlap. Tape to the body of the plane.
8. Bend the 7" piece to form a circle. Leave ½". Connect this to the body of the plane with a paper clip.

Note: Check measurements using a standard and product tester.

Tools and Materials

32 sheets of colored paper (8 different colors)	per class
4 scissors	"
4 rulers	"
2 tape measures (or folding rulers)	"
one box of paper clips	
one roll of masking tape	
6 samples of different colored planes.	

Language

Cut the paper.
Get a ruler.
Measure ___ inch(es).

Don't do it like that.
Do it like this.

Make a circle.
Now, connect them.

cut
bend
fold
measure

paper
tape

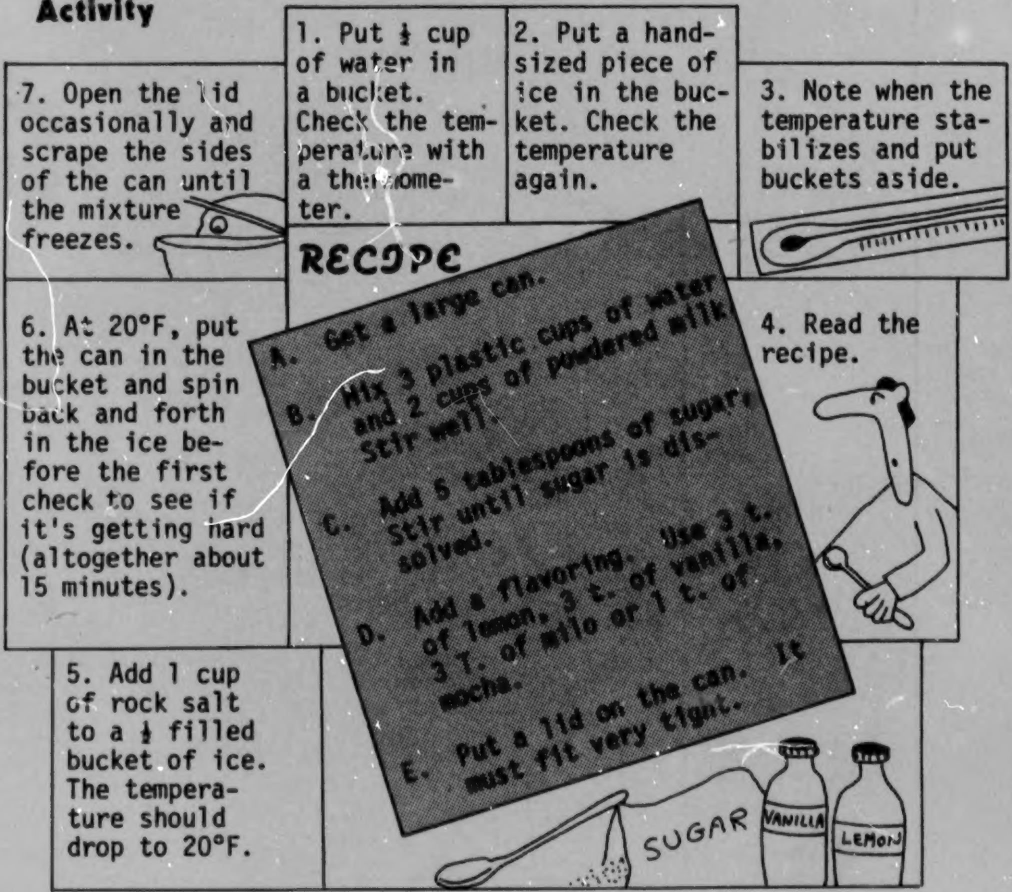
them
it

Making ice Cream

Optional Lesson

This lesson gives students practice reading a recipe, using a thermometer and further practice in measuring liquids and solids (e.g. sugar, salt, powdered milk).

Activity



1. Put ½ cup of water in a bucket. Check the temperature with a thermometer.

2. Put a hand-sized piece of ice in the bucket. Check the temperature again.

3. Note when the temperature stabilizes and put buckets aside.

4. Read the recipe.

5. Add 1 cup of rock salt to a ½ filled bucket of ice. The temperature should drop to 20°F.

6. At 20°F, put the can in the bucket and spin back and forth in the ice before the first check to see if it's getting hard (altogether about 15 minutes).

7. Open the lid occasionally and scrape the sides of the can until the mixture freezes.

RECIPE

A. Get a large can.

B. Mix 3 plastic cups of water and 2 cups of powdered milk. Stir well.

C. Add 5 tablespoons of sugar. Stir until sugar is dissolved.

D. Add a flavoring. Use 3 t. of lemon, 3 t. of vanilla, 3 T. of milo or 1 t. of mocha.

E. Put a lid on the can. It must fit very tight.

Note: The recipe can be words only, words and visuals or visuals only.

Tools and Materials

4-5 buckets per class
2 buckets (drinking water)
2 buckets (clean water)
measuring cups
8 plastic cups
8 spoons for ice cream
4 measuring spoon sets
4 thermometers
ice, rock salt
stirring sticks
1 can powdered milk
flavorings

Language

What's the temperature?
It's ______ degrees.

Did it go up?
go down?

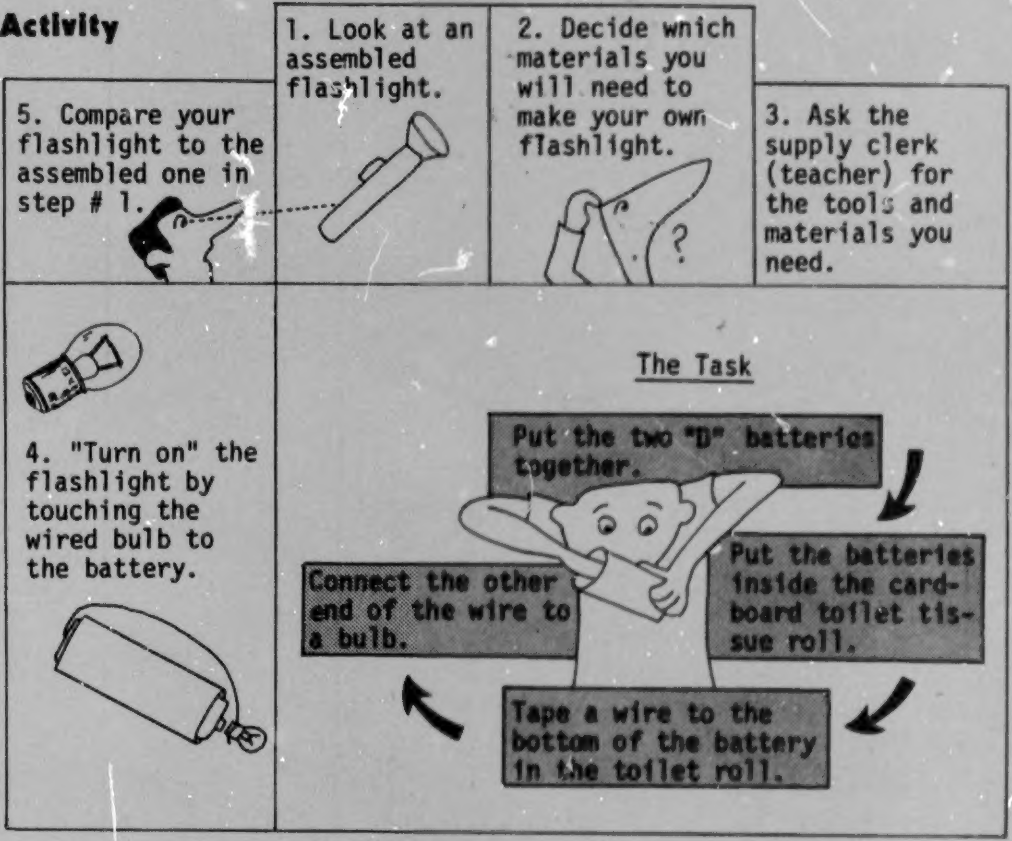
Put a little water in the bucket.

Put in the ice.
Read the recipe.
Add lemon or vanilla.
Turn the can like this.

Optional Lesson — Making a Flashlight

Making a flashlight gives students additional practice applying what they have learned about bulbs and batteries.

Activity



1. Look at an assembled flashlight.

2. Decide which materials you will need to make your own flashlight.

3. Ask the supply clerk (teacher) for the tools and materials you need.

4. "Turn on" the flashlight by touching the wired bulb to the battery.

5. Compare your flashlight to the assembled one in step # 1.

The Task

Put the two "D" batteries together.

Put the batteries inside the cardboard toilet tissue roll.

Tape a wire to the bottom of the battery in the toilet roll.

Connect the other end of the wire to a bulb.

Note: Present the steps of the task orally or by using pictures. Another option is to allow the students to experiment and "discover" the steps.

Tools and Materials

2 "D" batteries — per group or person
1 toilet tissue roll
bell wire
1 roll of electrical tape
1 bulb
1 assembled flashlight (real or tissue roll)

Language

What did you do?
First, I ________.
Then, I ________.
Finally, I ________.

What did he do?
she

Is yours the same?
different?

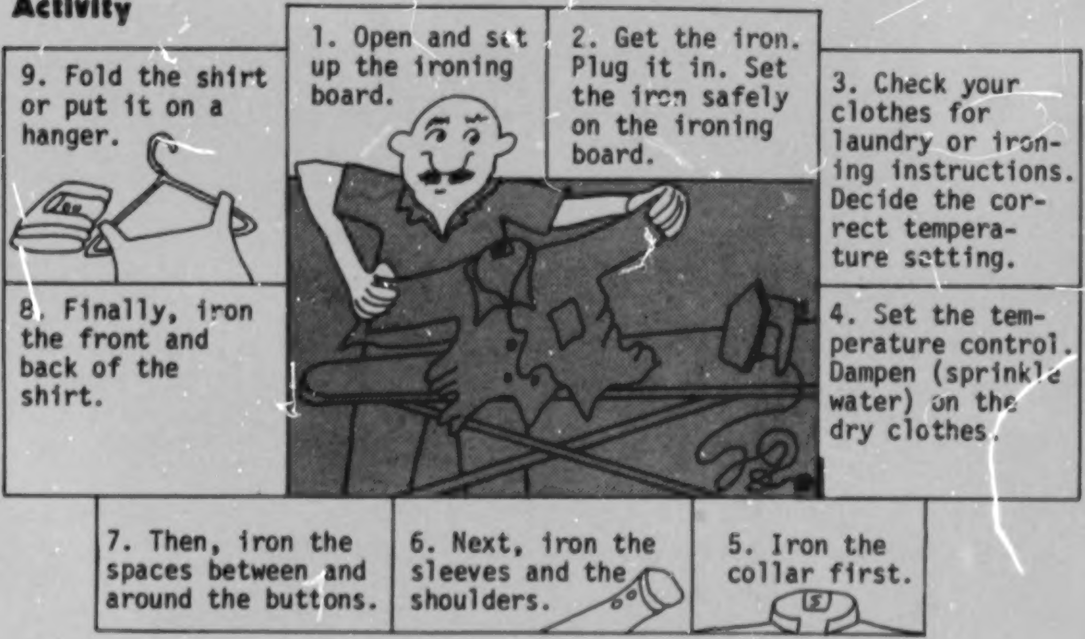
How's it different?

Turn it on.
off.

Ironing a Shirt　　Optional Lesson

This lesson gives students practice using an electric iron correctly and safely.

Activity



1. Open and set up the ironing board.
2. Get the iron. Plug it in. Set the iron safely on the ironing board.
3. Check your clothes for laundry or ironing instructions. Decide the correct temperature setting.
4. Set the temperature control. Dampen (sprinkle water) on the dry clothes.
5. Iron the collar first.
6. Next, iron the sleeves and the shoulders.
7. Then, iron the spaces between and around the buttons.
8. Finally, iron the front and back of the shirt.
9. Fold the shirt or put it on a hanger.

Note: It may be necessary to pull some shirts (without buttons) over the end of the ironing board to avoid ironing on two thicknesses of cloth.

Tools and Materials

shirt　　per student
iron
water container
　(with/without
　spray attachment)
ironing board
hanger

Language

Put down the iron like this.
Pick up
Set
Plug in
　　Not like that.
　　Like this.

Read the instructions.
　　label

How hot should the temperature be?
　　is it?

Is it hot now?
　　enough?
　too hot?

First, iron the ______.
Next
Then
Finally

Hang it up.
Fold

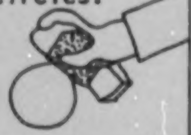
This lesson is for students who are familiar with the use of a drill, saber saw, compass and soldering iron.

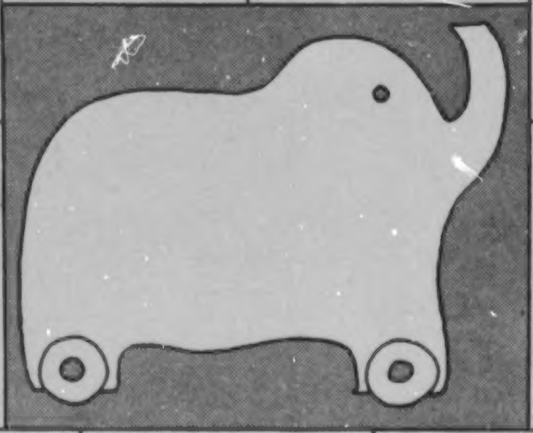
Activity

1. Use a compass to draw four 3" circles on a piece of wood.

2. Clamp the wood. Cut out the circles with a saber saw.

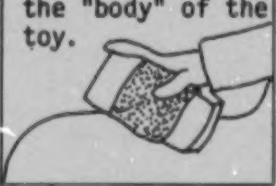
3. File and sand the wood circles.





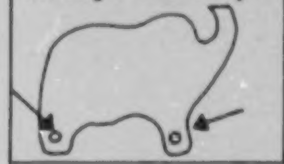
4. Pick a pattern for the toy body. Trace the pattern on the wood. Cut it out with a saber saw.

5. File and sand the "body" of the toy.

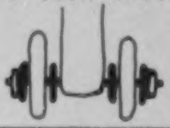


6. Mark the center with the compass. Drill a hole in the middle of the wheel. Use a large drill bit.*

7. Drill two holes through the body.



8. Put on each wheel with a nut and a bolt--placing washers on both sides of each wheel.



9. Cut off the excess bolt length with a hacksaw. Solder the end of the bolt to the nut.

*Provide a jig when drilling the wheels to locate the center.

Tools and Materials

wood for body (1" x 8" x 12" pieces) per group
wood for wheels (3/4" x 4")
wood file (rasp)
sandpaper
drill/drill bit set
saber saw
compass
c-clamp
4 nuts/4 bolts/8 washers
1 soldering kit

Language

How many parts?
wheels

What should you do?

How many kinds of wood (are there)?

Put on the ______.

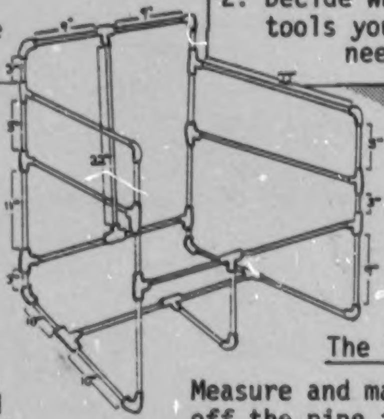
Put ______ through the ______.
between

Making a Chair — Optional Lesson

In this lesson, students interpret three-dimensional diagrams and use the information to construct a PVC pipe chair.

Activity

1. Look at the diagram.
2. Decide what tools you need.
3. Decide the number of chair components (elbows, tees) you need.
4. Estimate the number of feet of pipe you need.
5. Ask for the materials and tools you need.



The Task

Measure and mark off the pipe into required lengths.

Use the hacksaw to cut the pipes into segments.

Dip the pipe into dishwashing liquid for easy disassembly.

Put the chair together by following the diagram. Check for quality and comfort.

Note: As a follow-up, students can attach a pre-made cloth seat to the frame of the chair.

Tools and Materials

30' PVC pipe per group of 4
9 elbow connectors
16 tee connectors
hacksaw
meter boxes
measuring tape
dishwashing liquid

1 premade cloth seat (optional)

Language

What do you need?
want?

How many ____ do you need?
How many feet of pipe
inches
do you need?

Which is the longest?
shortest?

Are they the same?
different?

This is too long.
too short.

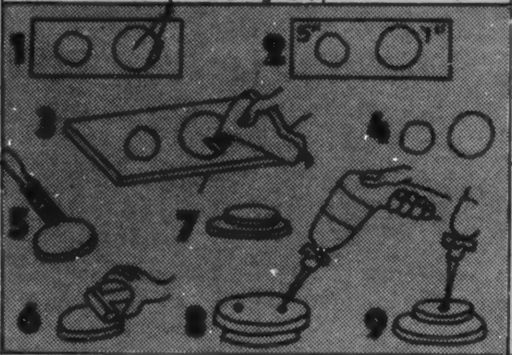
Optional Lesson — Making a Lampbase

This lesson gives students further practice reading diagrams and using a saber saw and power drill.

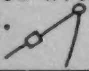
Activity

1. Use the diagram to elicit the following steps from the students.

The Diagram



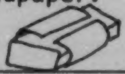
2. Make two circles (5" and 7") on the wood with a compass.



3. Clamp the wood with a c-clamp.

4. Cut out the circles with a saber saw. File the wood circles with a rasp.

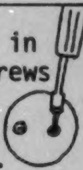
5. Sand the rough edges with the sandpaper.



6. Put the small circle on the big circle. Turn them over. Clamp the circles together.

7. Drill two holes with a power drill.

8. Put in two screws with a screwdriver.



9. Turn over the circles. Drill one more hole in the middle.

Note: The diagram and activity steps do not correspond.

Tools and Materials

Planed wood (1" x 8" x 13") per student group
4 saber saws
8 goggles
4 drills & bit sets
4 large screwdrivers
8 wood files
8 sanding blocks
4 compasses
4 squares
3 extension cords
30 sheets of sandpaper (3 grades)
8 large c-clamps
4 2" screws
8 1½ - 1 3/4" screws

Language

What did you make?

Are you finished?

How many circles do you have?

Which is bigger?
smaller?

This is rough.
Make it smooth.

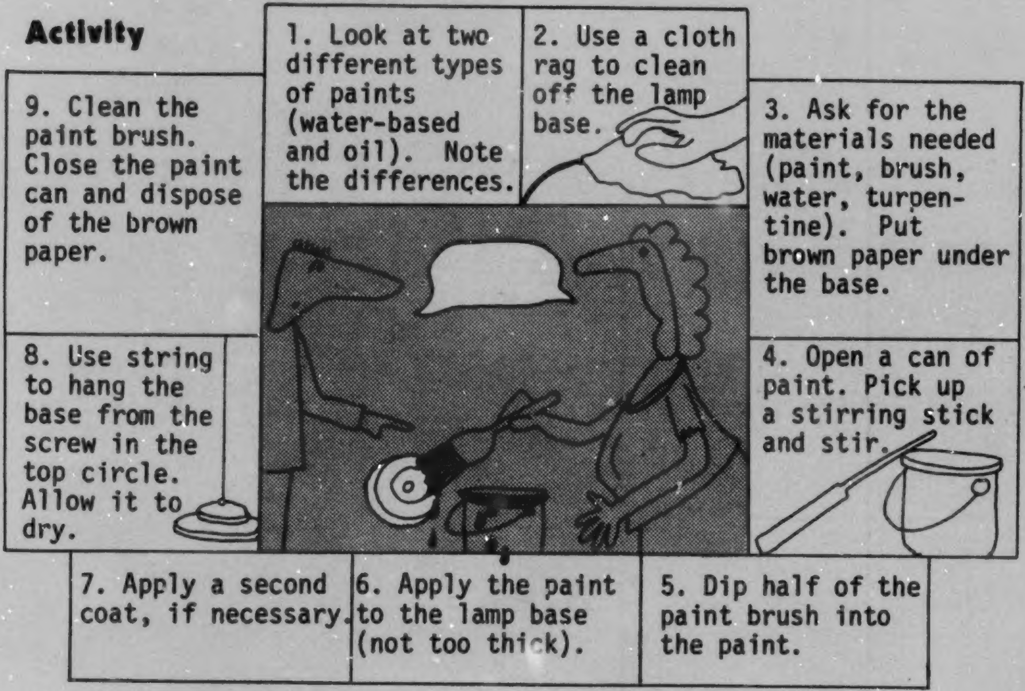
Not like that.
Like this.

Draw ____ with a compass.
Clamp ____ with a c-clamp.
Cut out ____ with a saber saw.
File ____ with a rasp.
Sand ____ with the sandpaper.

Painting a Lampbase **Optional Lesson**

This lesson gives students practice painting. Stress is placed on neatness and following a recognized procedure.

Activity



1. Look at two different types of paints (water-based and oil). Note the differences.
2. Use a cloth rag to clean off the lamp base.
3. Ask for the materials needed (paint, brush, water, turpentine). Put brown paper under the base.
4. Open a can of paint. Pick up a stirring stick and stir.
5. Dip half of the paint brush into the paint.
6. Apply the paint to the lamp base (not too thick).
7. Apply a second coat, if necessary.
8. Use string to hang the base from the screw in the top circle. Allow it to dry.
9. Clean the paint brush. Close the paint can and dispose of the brown paper.

Tools and Materials

1 plastic garbage bag per class
2 cans of oil based paint
2 cans of water-based paint
4 sitrring sticks
2 cleaning containers with water
2 cleaning containers for turpentine
2 bottles of turpentine
1 bucket of water
8 paint brushes
4 cloth rags
Brown paper or newspaper

Language

How many colors are there?
kinds

Smell the paints.
Are they the same/different?
Which is oil-based paint?
water-based
These are ________.
Those are ________.

What do you need?
I need ________.

Is it too thin?
thick?

Don't use water.
too much.
That's enough.

Optional Lesson — Making a Wire Frame

Soldering a wire frame for a lampshade gives students additional experience working working with metal, measuring and using tools.

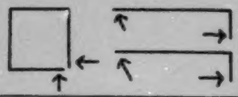
Activity

1. Show completed lampshade and examine a diagram of wire frame.

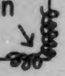
2. Use the hammer and pliers to straighten the wire. Then, cut into 3 lengths (12½", 12½" and 28").

3. Form the 28" piece into a square. (7" x 7").

4. Bend two smaller wires and clean all three with emery paper.



5. Wrap bare copper wire tightly to join the three wires but leave space between the "wrap."

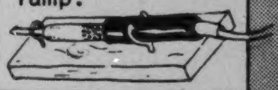


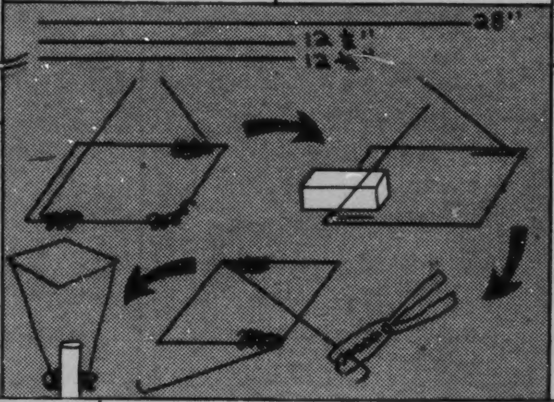
6. Demonstrate use of soldering iron. Show how to care for and clean.

7. Solder the square. Let cool and test connection. Resolder, if necessary.

8. Use a wooden block to support the two smaller wires as you solder. Then, solder and test the two supporting wires.

9. Take pliers and bend supporting wires to fit on the demonstration lamp.





Tools and Materials

wire, heavy gauge per class
soldering iron
soldering iron support
ruler
flux
sponge
copper wire
emery paper
asbestos pad
wood blocks
solder
long-nosed pliers
wire cutter

Language

Cut the wire.
What do you need?
I need a ruler.

Make a square.
Hold it tight.
Too much solder.

Cut the wire.
Which one?
This one.

Be careful, (it's very hot).

cut
measure
bend
straighten
wrap

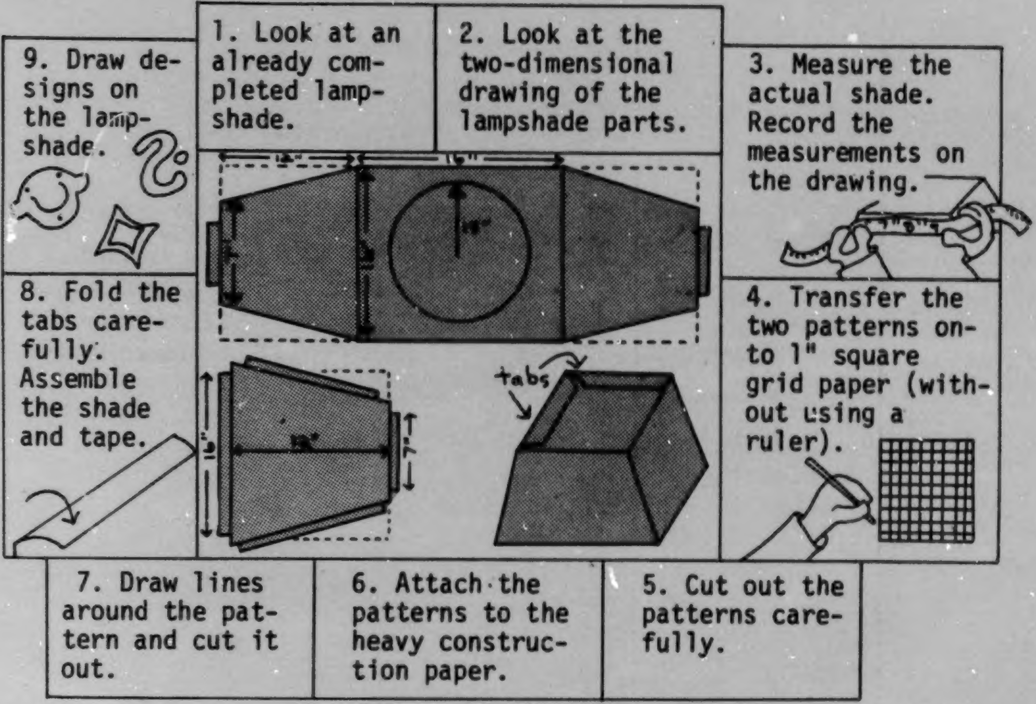
a ruler
pliers

hold
make
wrap

Making a Lampshade **Optional Lesson**

Making a lampshade gives students additional experience making and using patterns.

Activity



1. Look at an already completed lampshade.
2. Look at the two-dimensional drawing of the lampshade parts.
3. Measure the actual shade. Record the measurements on the drawing.
4. Transfer the two patterns onto 1" square grid paper (without using a ruler).
5. Cut out the patterns carefully.
6. Attach the patterns to the heavy construction paper.
7. Draw lines around the pattern and cut it out.
8. Fold the tabs carefully. Assemble the shade and tape.
9. Draw designs on the lampshade.

Tools and Materials

Sample lampshade	per class
1 roll of masking tape	
Pencils	1 per student
Compasses	
Straight edge	
Grid paper with 1" squares	
Heavy construction paper	

Language

Today we're gonna make a lampshade	
How many sides?	sides pieces squares
How long is it (from here to here?)	
This is a pattern.	
Can you draw it? No. Sure. I can try.	measure fold cut tape
Don't cut here. Fold here.	
Use them to measure.	
OK. Now, measure the ____.	

Optional Lesson   Assembling a Lamp

This lesson gives students practice following multi-step directions to perform a task.

Activity

1. Look at an assembled lamp and name the parts you know. Take apart the lamp.

2. Now put together your own lamp. Cut and strip both ends of a lamp cord. Connect the plug to one end of the wire. Check it.

3. Connect a 7" pipe to the coupling. Cut off about ¼" of the excess with a hacksaw.

4. Drill a hole in the cut coupling for the lamp cord. Drill another hole in the uncut coupling for the bolt.

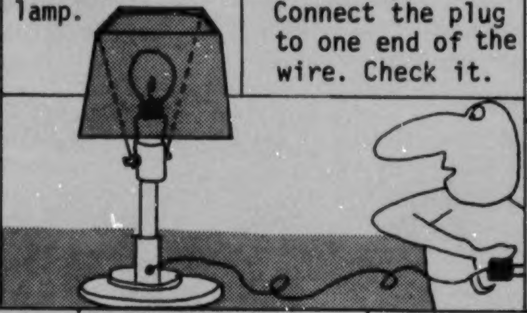
5. Put the coupling in the center of the lamp base. Put in a washer and a screw. Screw the coupling to the lamp base.

6. Put a wire through the hole in the coupling, through the pipe and then through the second uncut coupling.

7. Connect the wire to the light socket. (Check for a short circuit).

8. Tape the light socket to the coupling. Put the light bulb in the socket.

9. Attach the lamp shade to the bolt in the top coupling.



Note: Use PVC pipes about 1" in diameter.

As a follow-up, give students a pricing sheet to determine lamp costs.

Tools and Materials

5 groups of 2

5 student-made lamp bases
5 7" PVC pipes
10 couplings
5 light sockets
5 light bulbs
5 plugs
5 6' segments of electrical cord
5 1 3/4" screws
5 washers
1 roll of electrical tape
2 hacksaws
5 screwdrivers
2 c-clamps
2 power drills
2 extension cords
5 additional bolts, nuts, washers (to attach to lampshade)

Language

What's this part (called)?

Take out the ________.
off

Untape the ________.
Unscrew

Put your lamp together.
Take it apart.

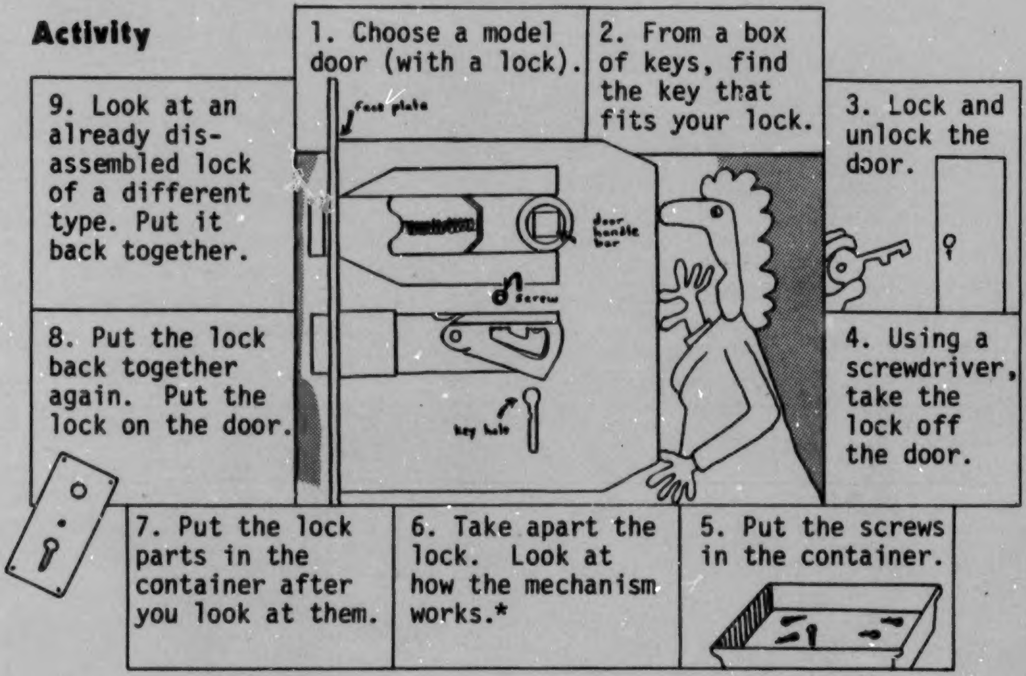
What should you do first?
Next?
What do you need?

Check it.
the ________.
for a short circuit.

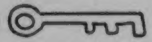
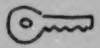
Assembling a Door Lock **Optional Lesson**

In this lesson, students explore the workings of a common door lock. They take the lock from a door, disassemble it, put it back together and put it back on the door.

Activity



1. Choose a model door (with a lock).
2. From a box of keys, find the key that fits your lock.
3. Lock and unlock the door.
4. Using a screwdriver, take the lock off the door.
5. Put the screws in the container.
6. Take apart the lock. Look at how the mechanism works.*
7. Put the lock parts in the container after you look at them.
8. Put the lock back together again. Put the lock on the door.
9. Look at an already disassembled lock of a different type. Put it back together.

*These  locks and keys are more explorable than 

Note: One option is to just have students take the lock entirely off the door, observe how it works when a key is turned in it and then put it back on the door.

Tools and Materials

1 screwdriver (small philips)	per pair
1 screwdriver (large regular)	
1 container, tray or pan	
1 model door with lock unit and key	
a variety of different locks	per class

Language

Take a _____.
Pick up a _____.

Does it fit?/Does it work?

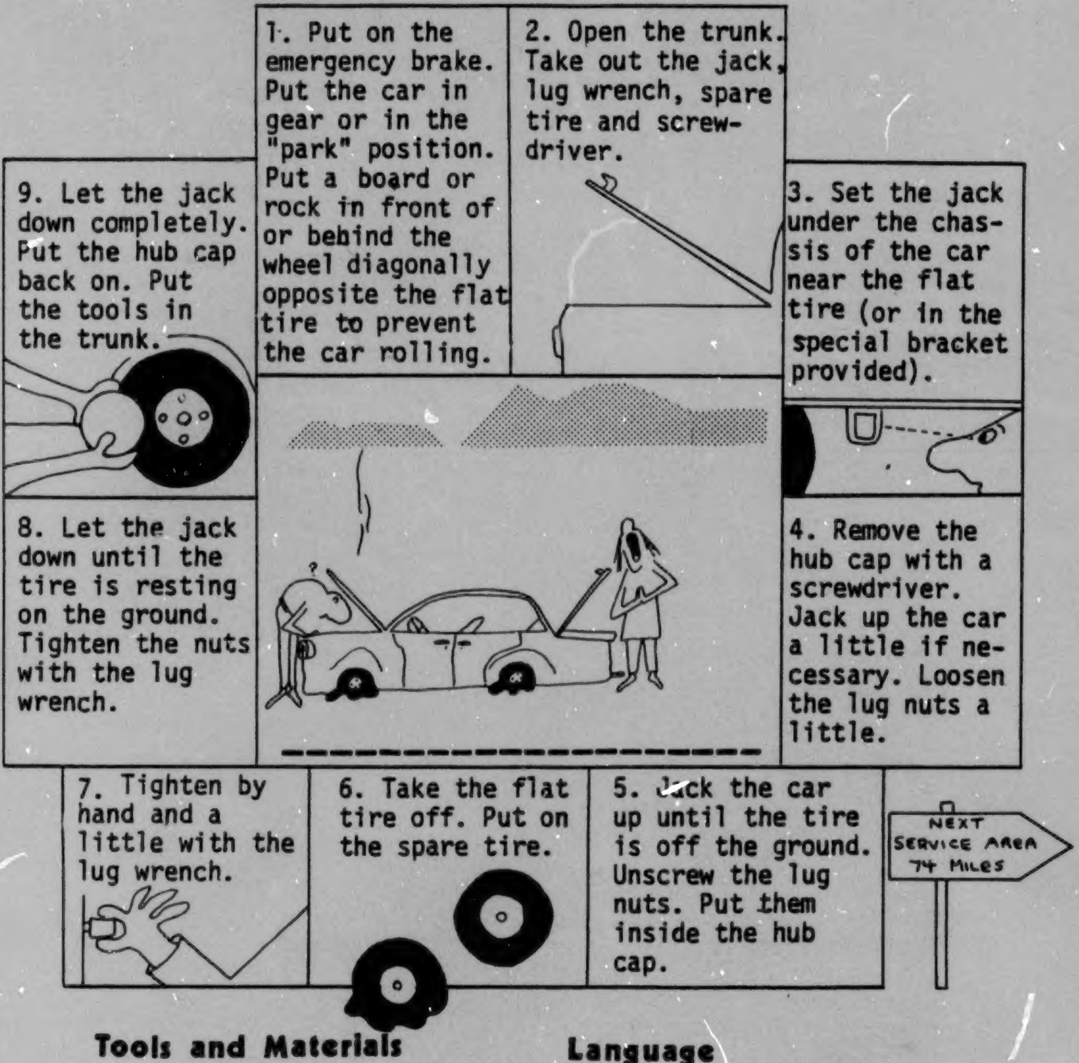
Take another one.
a different one.

Try again.
Take it off.
apart.

Put it together (again).
back (on).

In this lesson, students follow a multi-step set of instructions to complete a task.

Activity



1. Put on the emergency brake. Put the car in gear or in the "park" position. Put a board or rock in front of or behind the wheel diagonally opposite the flat tire to prevent the car rolling.

2. Open the trunk. Take out the jack, lug wrench, spare tire and screwdriver.

3. Set the jack under the chassis of the car near the flat tire (or in the special bracket provided).

4. Remove the hub cap with a screwdriver. Jack up the car a little if necessary. Loosen the lug nuts a little.

5. Jack the car up until the tire is off the ground. Unscrew the lug nuts. Put them inside the hub cap.

6. Take the flat tire off. Put on the spare tire.

7. Tighten by hand and a little with the lug wrench.

8. Let the jack down until the tire is resting on the ground. Tighten the nuts with the lug wrench.

9. Let the jack down completely. Put the hub cap back on. Put the tools in the trunk.

Tools and Materials

1 jack per class
1 tire (spare)
1 lug wrench
1 car
1 screwdriver

Language

What's the matter?

I've got a flat tire.
You've

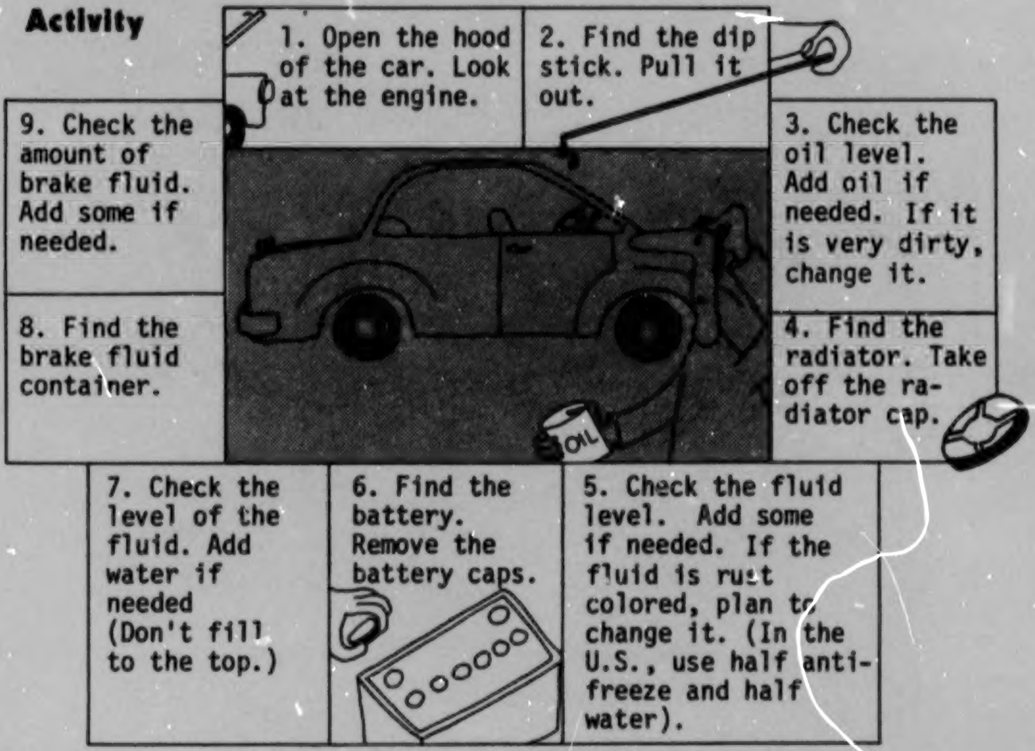
Put in/take out ________.
Put on/take off ________.
Screw/unscrew ________.
Jack up ________.

What are you doing (now)?
Can I help?
Can you help me?

Auto Maintenance — Optional Lesson

In this lesson, students check the levels of fluids needed to keep an automobile running properly (e.g. radiator liquid, battery fluid, brake fluid).

Activity



1. Open the hood of the car. Look at the engine.
2. Find the dip stick. Pull it out.
3. Check the oil level. Add oil if needed. If it is very dirty, change it.
4. Find the radiator. Take off the radiator cap.
5. Check the fluid level. Add some if needed. If the fluid is rust colored, plan to change it. (In the U.S., use half antifreeze and half water).
6. Find the battery. Remove the battery caps.
7. Check the level of the fluid. Add water if needed (Don't fill to the top.)
8. Find the brake fluid container.
9. Check the amount of brake fluid. Add some if needed.

Note: If the transmission is automatic, start the engine. Then, follow steps 2 and 3, for the transmission. If the oil is brown instead of red, plan to change it.

Tools and Materials

1 car per class
1 can of motor oil
1 can of automatic transmission fluid
1 can of brake fluid
1 container of antifreeze
1 bottle of clean water
1 empty container to mix water & antifreeze

Language

Please check _____ fluid.
water.
oil.

Can you please check the _____?
Add (some) _____.
(That's) enough.

Where's the _____?

Is this it?

I need some _____.

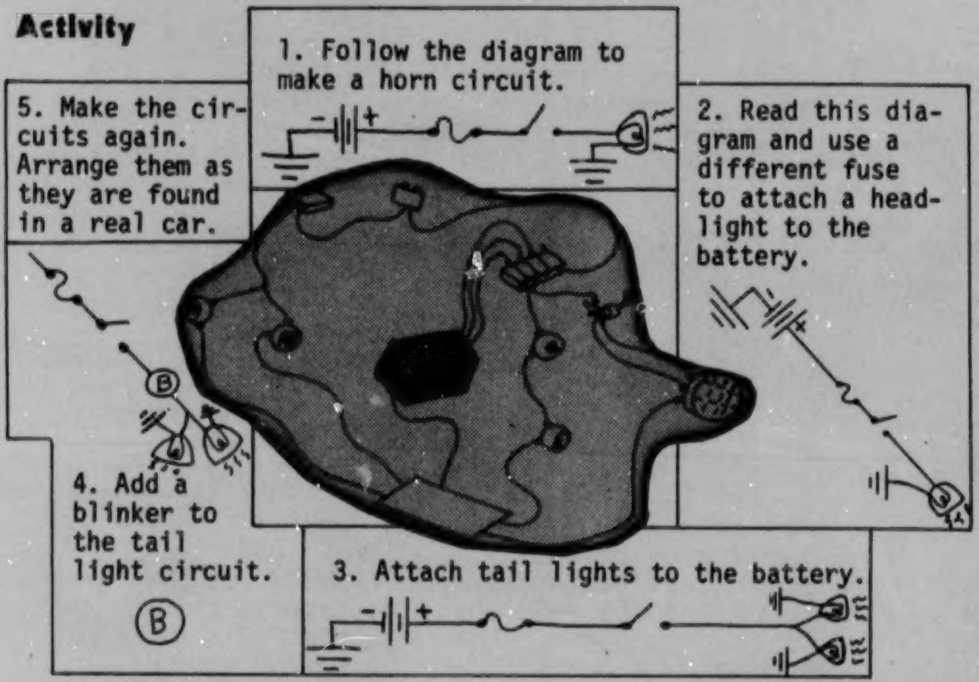
Do you need to change it?

Why?

Optional Lesson — Auto Electricity

In this lesson, students build a horn circuit according to a diagram. They then add a headlight, tail lights and a blinker.

Activity



1. Follow the diagram to make a horn circuit.

2. Read this diagram and use a different fuse to attach a headlight to the battery.

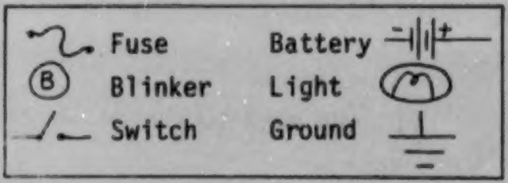
3. Attach tail lights to the battery.

4. Add a blinker to the tail light circuit.

5. Make the circuits again. Arrange them as they are found in a real car.

Tools and Materials

2	12 volt batteries	per class
2	headlights	
2	pairs of tail lights	
2	single switches	
2	multiple switches	
2	push button switches	
2	small screwdrivers	
2	medium screwdrivers	
2	razor knives	
2	wire cutters	
2	files	



Language

Look at the pictures.
What does this mean?
Can you read this?

A

Look at the diagram(s).
What is this symbol?
What does this symbol
mean?
Can you read this
symbol?
diagram?

B

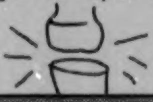
Building a Level Wall

Optional Lesson

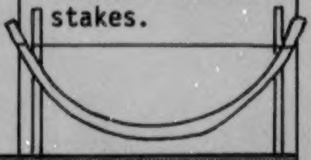
This lesson gives students practice using string, a clear plastic tube and a plumb bob to make a level wall.

Activity

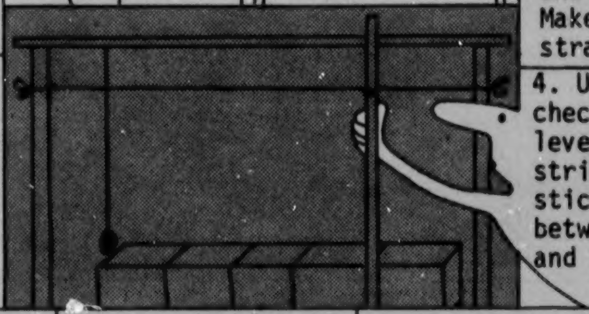
1. Hammer 2 stakes in the ground about 3 yards apart.



2. Tie a string between the two stakes.



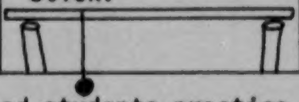
3. Put water in a plastic tube and hold the tube in a "U" between the 2 stakes. Compare the water level and the string. Make the string straight.



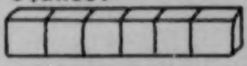
4. Use a stick to check the ground level under the string. Hold the stick vertically between the string and the ground.

5. Mark the stick. Move the stick along the string. If the ground is not level, use a hoe or shovel to remove or add soil.

6. Lay a stick on the top of the two stakes. Attach a plumb bob to the stick.



7. Get 6 blocks. Lay the blocks end-to-end between the two stakes.



8. Use the string and the plastic tube again to check if the blocks are level. Use the plumb bob to keep the blocks vertically aligned.

9. Build a wall 4 blocks high. Readjust the string and check if it's level. Also, recheck the plumb bob.

Note: Have advanced students practice determining a right angle when constructing a wall.

Tools and Materials

30 concrete blocks per group
water
1 clear plastic tube (4 yards)
2 3' stakes (metal or wood)
1 1½' stick
1 roll of heavy string
1 pair of scissors
1 large hammer
hoes and shovels
1 plumb bob
1 yard stick (or tape measure)

Language

Put the stake here.
Hold there
Hammer

Measure 3 yards.
the distance

Cut the string.
Tie

Get another block.
stick
stake

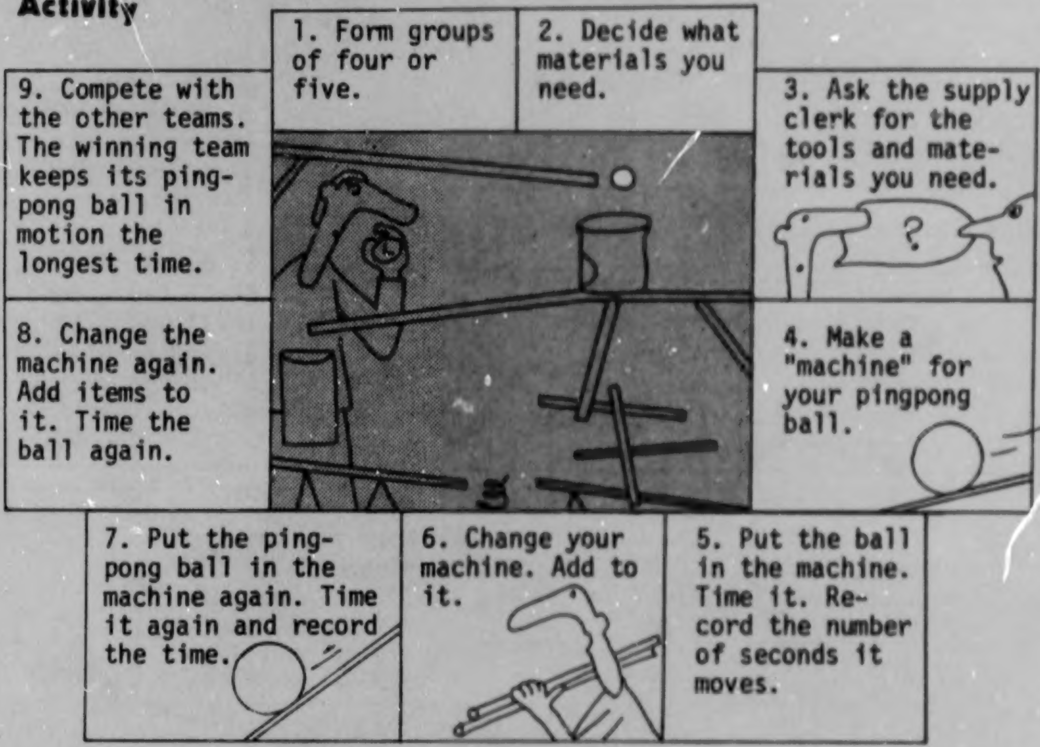
Is this (string) level?
block

Make it level.
them

Rube Optional Lesson

In this lesson, students work in teams to solve the problem using their combined skills and knowledge. The task: make a "machine" which will keep a pingpong ball in motion the longest period of time.

Activity



1. Form groups of four or five.
2. Decide what materials you need.
3. Ask the supply clerk for the tools and materials you need.
4. Make a "machine" for your pingpong ball.
5. Put the ball in the machine. Time it. Record the number of seconds it moves.
6. Change your machine. Add to it.
7. Put the pingpong ball in the machine again. Time it again and record the time.
8. Change the machine again. Add items to it. Time the ball again.
9. Compete with the other teams. The winning team keeps its pingpong ball in motion the longest time.

Note: Set a time limit on testing and planning. Advanced classes can draw a diagram of their "machines."

Tools and Materials

1 pingpong ball per group
tubes
pipes
wires
pieces of wood
nails
bolts
screws
toilet rolls
light bulbs
etc.
a stopwatch

Language

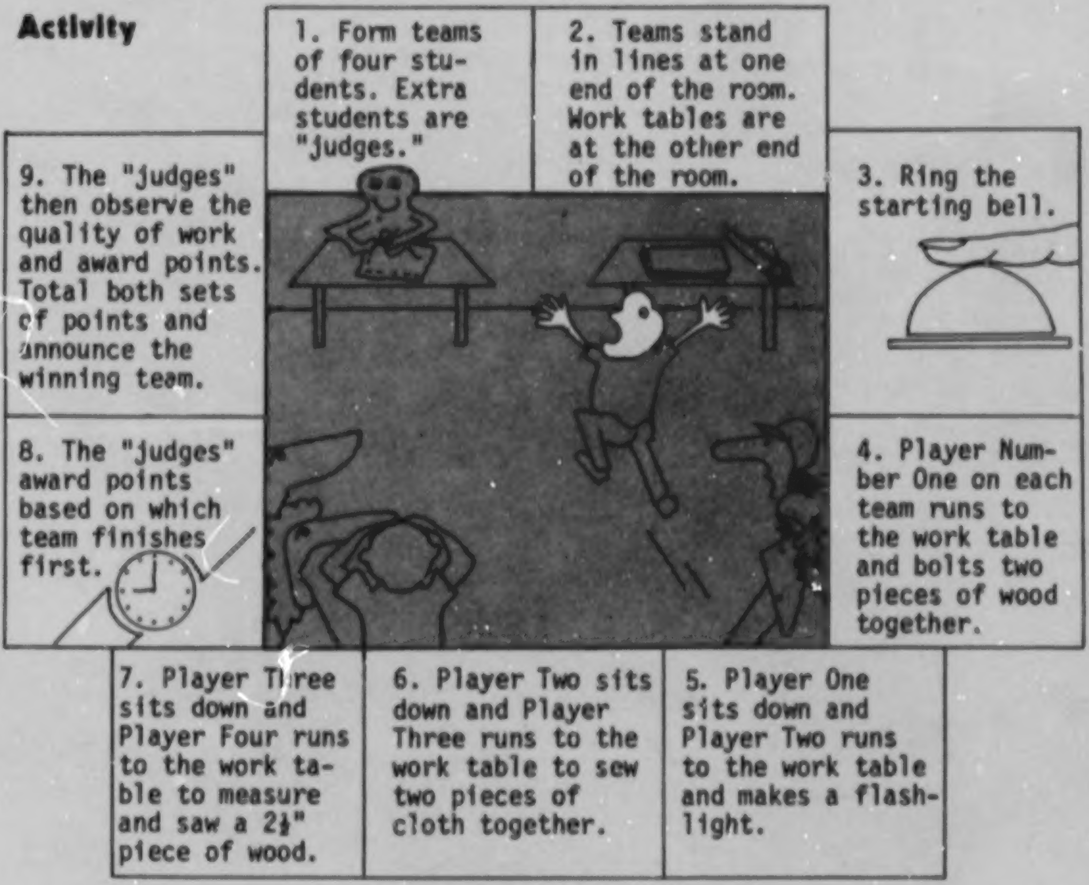
I need a _____.
A what? ______.
A ______.
What color?
size?
shape?
kind?
length?
width?
What else do you need?
How long? (time)
How long does it move?
travel?

Optional Lesson

PETathalon

In this lesson, teams of four students perform simple tasks in competition against each other. Stress is placed on team work and the issue of time vs quality.

Activity



1. Form teams of four students. Extra students are "judges."

2. Teams stand in lines at one end of the room. Work tables are at the other end of the room.

3. Ring the starting bell.

4. Player Number One on each team runs to the work table and bolts two pieces of wood together.

5. Player One sits down and Player Two runs to the work table and makes a flashlight.

6. Player Two sits down and Player Three runs to the work table to sew two pieces of cloth together.

7. Player Three sits down and Player Four runs to the work table to measure and saw a 2½" piece of wood.

8. The "judges" award points based on which team finishes first.

9. The "judges" then observe the quality of work and award points. Total both sets of points and announce the winning team.

Note: The name PETATHALON is based on PET (pre-employment training).

Tools and Materials

3 pieces of wood per team
2 bolts, washers nuts
2 batteries
1 wire
1 bulb
1 toilet roll
1 wrench
1 saw
1 ruler
2 pieces of cloth (3" sq.)
1 needle
1 thread
1 roll of tape

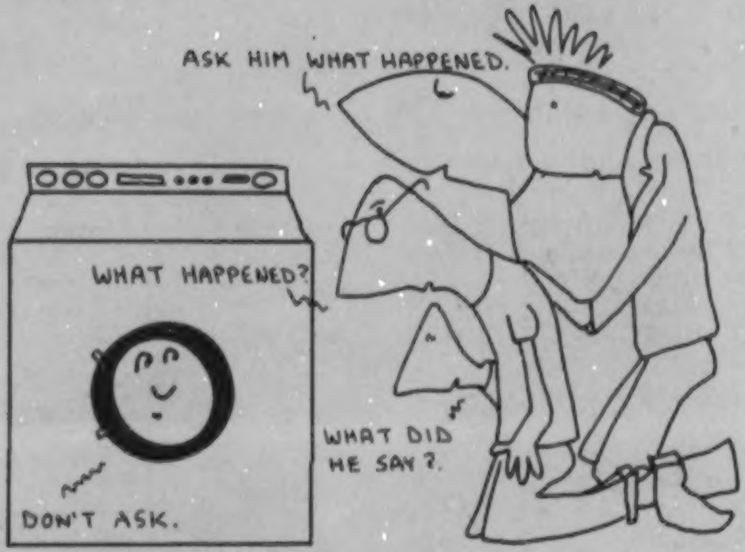
Language

Finish

1 ......10 points
2 ....8 points
3 ....6 points
4 ....4 points

Quality

1 ......10 points
2 ....8 points
3 ....6 points
4 ....4 points

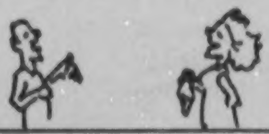

ASK HIM WHAT HAPPENED.
WHAT HAPPENED?
WHAT DID HE SAY?
DON'T ASK.

Language

- I don't understand.
  Repeat, please.

+ I said. "What time is it?"

- Oh. It's four o'clock.



What are you teaching when you teach language? What kind of subject is it? What is language? How do people use it? What are your answers to these questions?

Like your choices about learning and teaching, the choices you make about language can also have great impact on your students' learning. Do you choose to emphasize grammar over pronunciation? Do you choose to include gestures or other non-verbal aspects of language? Do you choose to have students use language to communicate with each other? The purpose of this section is to ask you to examine your definition of language, from the perspectives of language user and language teacher, to clarify your reasons for teaching what you teach.

Language textbooks make many choices about language for you. But depending on your own view of language, there are still many choices open to you. Language is a vast subject, intimately and intricately linked with people. It reflects virtually all aspects of human life: the way people structure and implement their dealings with each other, the social systems they set up, their customs and values--their culture. Language is also a system in itself, with patterns for sounds, grammar, words and meanings, and in some cases, script. Which is most important? How do you decide? What are your reasons, your criteria?

Again, one person's point of view is presented in the following pages. Again, you are not asked to accept or agree with his view of language. Use it and the questions in the text to define or affirm what is true for you.

Learning another language can be a unique journey into another perception of people and of the world. Studying both language and how you and others learn it can lead to truths which will help you teach it.

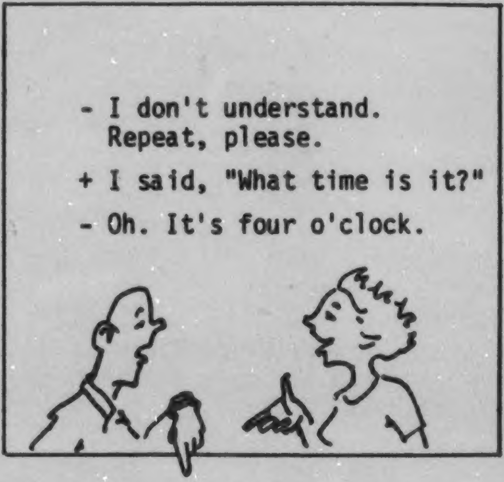
What is your view of language?

Language

LANGUAGE AS SUBJECT

It is possible to study language without looking at how it is really used by native speakers. It is like studying about riding bicycles by taking apart a bicycle and examining the pieces. Even though it is not easy to separate language from the people who use it and from the culture where they use it, such a study can help you understand how language works.

Knowing how to form the sounds, how to make grammatical sentences, how to choose the correct words, how to write correct sentences--all this can be called linguistic competence.



- I don't understand.
  Repeat, please.

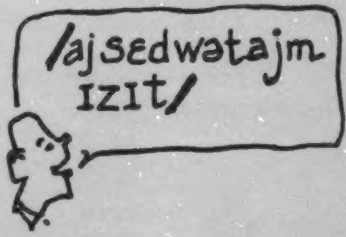
+ I said, "What time is it?"

- Oh. It's four o'clock.

Language as a Subject

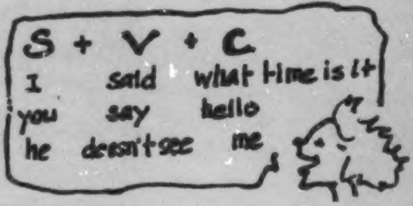
Sounds

Spoken language is a stream of sound. This stream of sound is in fact a stream of many sounds. The sound system of a language can be reduced to a number of specific elements, each a possible teaching focus.



Grammar

Grammar is the set of rules for making words and sentences in the language. These rules are understood by every native speaker of a language. Grammar is based primarily on the meaning of words and the function of words in sentences.



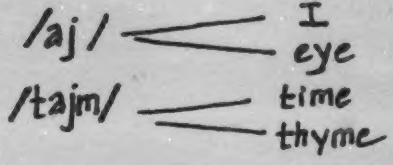
Vocabulary

Vocabulary is words, words and their meanings. A dictionary is a good example of the vocabulary of a language: simply a list of all the words and what they mean.

repeat — to perform again

Script

Script is the reflection of the spoken language in writing. In English, which has an alphabetic writing system, there is a link between sound and symbol. The letters represent certain sounds in the language.



SOUNDS

Consonants Vowels	Where does the voice continue or stop?	I O U E A D' NT ND RST ND
Word Stress	Where does the emphasis fall?	underStand
Rhythm	What beat or pattern does the sound follow?	I don't understand • · · • · · • · · •
Intonation	Where does the voice rise or fall?	I don't un der stand.
Sentence Stress	Which words or parts of words are emphasized?	I don't underStand.
Phrasing	Where do you pause?	I said//what time// is it?

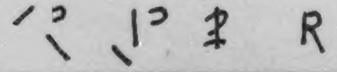
GRAMMAR

Parts of Speech	What functions do words serve?	NOUNS — I, it, time VERBS — repeat, is, said
Roots Affixes	What can you add to words?	stand — under·stand·abl·y stand-in stands
Word Order	Which words go where?	time it what is
Sentence Patterns	What kinds of words fit the pattern?	SUBJECT + VERB + COMPLEMENT

VOCABULARY

Content Words	Which words describe the topic?	four o'clock
Function Words	Which words hold the sentence together?	It is

SCRIPT

Letter Formation	How do you make the letters?	
Linear Sequence	In which direction do you read and write?	.esaelp ,taepeR .dnatsrednu t'nod I
Spacing	Where are the blank spaces?	idontunderstandrepeatplease
Punctuation Capitalization	How do you set words apart?	? . , ' " I R
Spelling	How do the sounds match the symbols?	/i/ — ee ea e i

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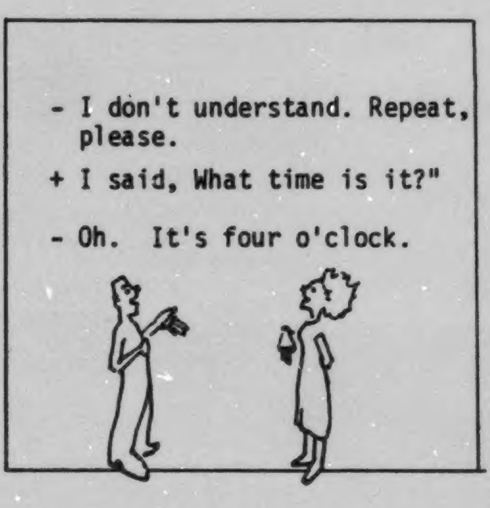
LANGUAGE IN USE

Language is more than just a subject of study. It is a living, dynamic link among people. People use language. Language is an integral, intricate part of life.

Looking at how people actually use language can help you understand how to teach it. There is, after all, a big diffference between knowing about a language and knowing how to use it with native speakers.

Knowing how to use language--knowing about the people who speak it, knowing about their culture--this know-how is called communicative competence.

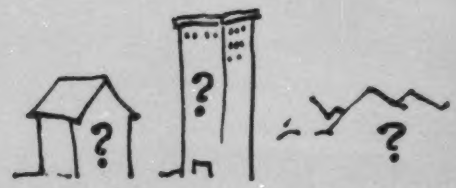

- I don't understand. Repeat, please.
+ I said, What time is it?"
- Oh. It's four o'clock.

Language in Use

Language in use involves language for communication. Looking at language in this way means looking at communicative exchanges beween people.

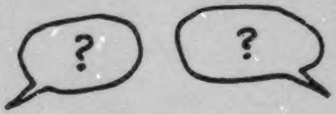
Situation

Every exchange occurs somewhere. This setting, this place can have an effect on the kind of language that is used. Where are the people? At home? In the park?



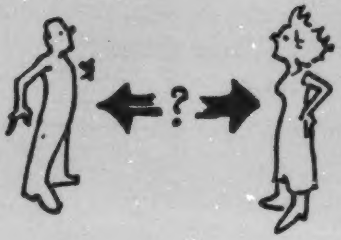
Topic

Also, every exchange involves a topic, a subject of conversation. What are the people talking about? The weather? The stock market?



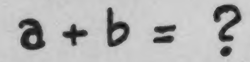
People

The people involved in the exchange, their ages, their sex, their social relationship, their self-image--all these factors can influence the language and the nature of the exchange.



Function

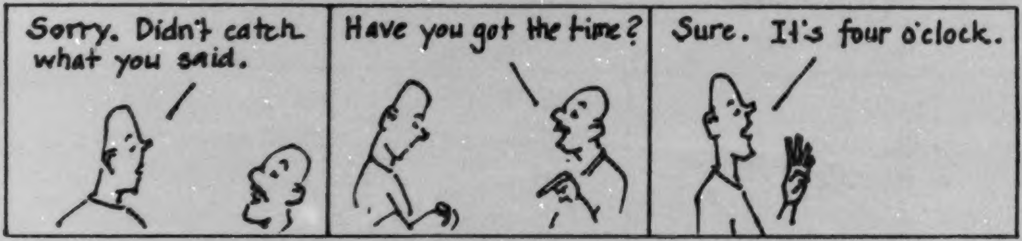
What is the purpose of the exchange between these people? Is it to get information? Is it to express disagreement? Is it to say goodbye? To congratulate?



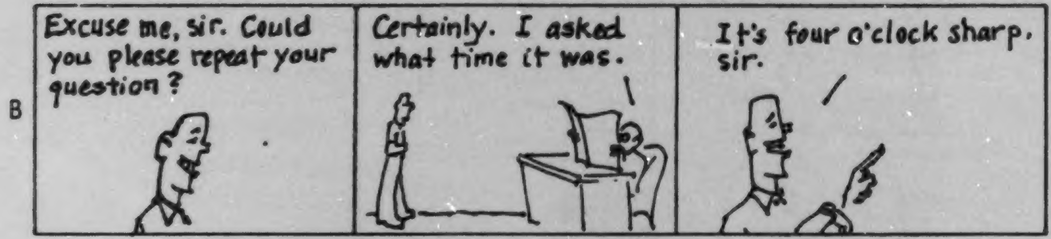
Examine the following three scenarios to see how language in use works:

	Situation	Topic	People	Function
A	Street Corner	time of day	- John - stranger	to request clarification
B	Office	time of day	- John - John's boss	to request clarification
C	Kitchen	time of day	- John - Mary: John's wife	to request clarification

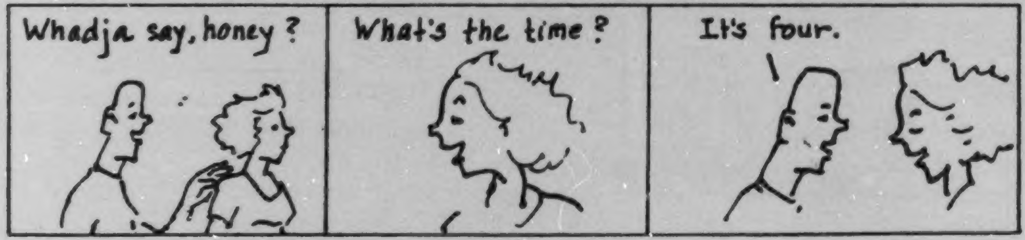
A


Sorry. Didn't catch what you said.
Have you got the time?
Sure. It's four o'clock.

B


Excuse me, sir. Could you please repeat your question?
Certainly. I asked what time it was.
It's four o'clock sharp, sir.

C


Whadja say, honey?
What's the time?
It's four.

Is there a place for this aspect of language in the classroom? Why? Why not?

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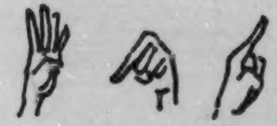
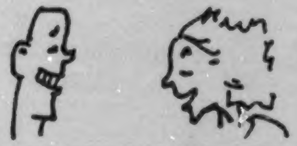
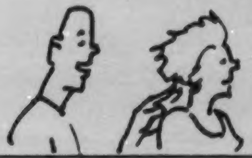
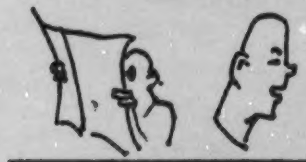
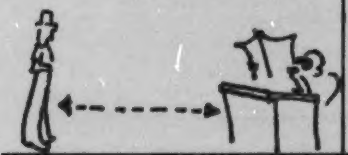
OTHER KINDS OF LANGUAGE

The oral and the written forms of language are just two ways of expressing and understanding meaning. Nonverbal forms also play an important role in the process of communication. They are more difficult to isolate and to study, since we don't usually notice them, until something goes wrong.

- I don't understand.
  Repeat, please.
+ I said, "What time
  is it?"
- Oh. It's four o'clock.

Consider these aspects of the scenarios from the previous page:

	GESTURES	With hands? Arms? Shoulders? Head?
	FACIAL EXPRESSIONS	Smiles? Frowns? Winks?
	TOUCHING	Who touches whom? Where? For how long?
	EYE CONTACT	Do people look each other in the eye? Do they look down or away?
	DISTANCE	How far apart or close together do people position themselves?

Do these have a place in the classroom?
Why? Why not?

WHAT IS LANGUAGE FOR?

For COMMUNICATION	You use language to convey meaning, to make yourself understood. Others do the same. When the message gets across, communication has occurred.
For SELF-EXPRESSION	All that is conveyed is not always understood. You can use language for your own ends and purposes; communication may not be one.
For THINKING	Language provides you with symbols that help you think. With words in your mind, you can do math problems, plan tomorrow's activities, recall an event from your past.
For DESCRIBING THE WORLD	What you perceive. What you experience. What surrounds you--and the perceptions, experiences and surroundings of others. Language provides symbols that reflect your perception--the perception of people of your culture of the world around you.

CULTURE

To speak a language--to know about the language and to know how to use it appropriately--means many things. It means knowing how to express yourself, how to communicate, how to think in that language. It means knowing about the culture, the world of the people who share that language--their history, their values, their institutions.

All this you can do--as a native speaker of your own language. All this your students can do--as speakers of their mother tongue.

Teaching a second language, then is offering an opportunity for people to become bilingual, to become bicultural, to learn another perception of the world around us.

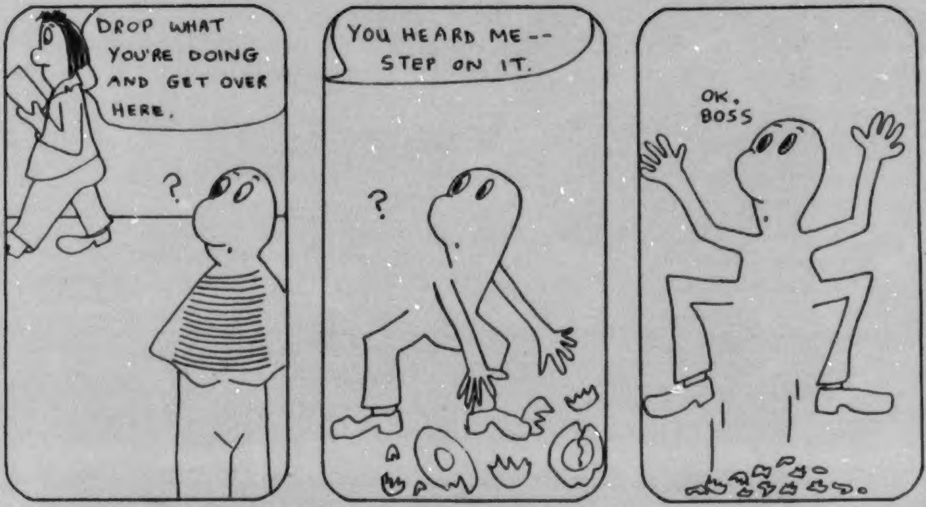
Does this make sense to you?
Why? Why not?

Language

SUMMARY

Language has many faces. As a language teacher, there are many decisions you have to consider when you think about what to teach. Are you teaching linguistic competence--a knowledge of what language is about? Are you teaching communicative competence--a knowledge of how to use language? Are you teaching non-verbal aspects of language--gestures, eye contact, facial expressions? Are you teaching culture--customs, behavior and perceptions of native speakers of that language? Are you teaching people to become bilingual/bicultural?

What is your view of language?


DROP WHAT YOU'RE DOING AND GET OVER HERE.
?
YOU HEARD ME -- STEP ON IT.
?
OK, BOSS

Language Activities

Suggestions for language activities appear in each lesson of the curriculum. In addition, Shifting Gears, Book 1 also contains a section on techniques. On the following pages several language games, activities and techniques are listed and described. They serve as an additional resource when planning the language focus of a lesson.

For the purpose of organization, the activities have been divided into the following categories:

Instructions
Yes/No Questions...To Do
Yes/No Questions...To Be
Yes/No Questions...Can
Question Words...What
Question Words...Which
Question Words...Where
Question Words...When
Question Words...Who
Question Words...Whose
Question Words...How Long, How Many and How Much
Requests...Can, Could and Would
Descriptions/Comparisons
Statements
Explanations...How and Why
Vocabulary
Everyday English
Going Further

Activities appearing in one category, however, might be equally appropriate in other categories. For example, "Getting Your Own Back" appears under Question Words (What). It could also be listed under Statements.

Teachers are encouraged to adapt, revise and explore further uses of the activities which follow. No suggestion is made about when to use them. Many are appropriate for presentation, practice, review or assessment.

These games, activities and techniques are drawn from a variety of sources and reflect the efforts of teachers and supervisors to adapt them to fit the subject matter of this curriculum. It is impossible to thank everyone for ideas outlined here but special thanks go to these colleagues for ideas mentioned in Language Activities: P. Lance Knowles, Ruth Sasaki for "Fluency Squares" and Carolyn Graham for "Jazz Chants."

INSTRUCTIONS

....(using tools/completing tasks)

1. Simon Says
2. Ask For It
3. Operation
4. Hans' Game
5. Tell Me How To Draw It
6. Do the Same

....(following sequences/completing tasks)

1 Tell Me What
2. Safety Sequence
3. Soup
4. Foreman
5. Construction Worker
6. What Should I Do?

....(giving/receiving clarification)

1. Gossip
2. Intonation
3. Rituals
4. Situation
5. Whatsit
6. Work Stations
7. Task Cards

....(locating something)

1. Number Search 1
2. Number Search 2
3. Find It
4. Floor Map
5. Treasure Hunt
6. Go Get
7. Put Away

YES/NO QUESTIONS

....(with do)

1. Go Fish
2. Spinner
3. Cue Cards
4. Did She?
5. Out of Sight
6. Banana
7. Food Service

....(with be)

1. Twenty Questions
2. Question-Answer Practice
3. Memory Table
4. Memory Picture
5. Detective
6. Find That Shape
7. Too Big/Too Small
8. Hidden Actions
9. Box and Bag
10. Noticing

YES/NO QUESTIONS (CONT'D)

....(with can)

1. Can You?
2. Cubes
3. Spinners
4. Fluency Square

QUESTION WORDS

.... (what)

1. Wrapped Objects
2. Keep It
3. Jelly Beans
4. Question-Answer Practice
5. Puzzle
6. Missing Pictures
7. Getting Your Own Back
8. Situation
9. The What?

....(which)

1. Comparisons
2. All The Same
3. Beauty Contest
4. Which One?

....(where)

1. Remember Where
2. Stations
3. Cummings Device
4. Map Dyad
5. What Am I Thinking Of?
6. Maze Pairs

....(when)

1. Spinners
2. Picture Cues
3. Cubes
4. Daily Routine Chart
5. When What?
6. Telephone Message
7. Telephone Invitation

....(who)

1. Who Has What?
2. Who Is It?
3. Who Me?
4. Who?
5. Characters
6. Puzzle

....(whose)

1. Whose Is It?
2. Chart Practice
3. Whose Mess?
4. Game Language
5. Getting Your Own Back

QUESTION WORDS (CONT'D)

....(how)

1. Spinners
2. Hardware Store
3. How Many/How Much?
4. Long Answers
5. Chart Practice
6. The Price Is Right

REQUESTS

1. Can You?
2. Role Play
3. Can I Have Some Nails?
4. Cubes
5. Spinners

DESCRIPTIONS/COMPARISONS

1. I Lost Something
2. Scrambles
3. Same/Different
4. Spiel
5. Open-Ended Task
6. My Uncle's Car

STATEMENTS

1. Color and Numbers
2. Color and Rhythm
3. I See
4. Which Word Doesn't Belong?
5. Memory Table
6. Going To Work
7. Charades
8. Matching
9. My Tool/Your Tool
10. Stick Up
11. Find The Object
12. Here And There
13. Liar

EXPLANATIONS

1. How?
2. Picture Interpretation
3. Why Are You Going?
4. Why Are You Late?
5. Because
6. Why Aren't You Working?

VOCABULARY

....(using pronouns)

1. Demonstration
2. Spinners
3. Cubes
4. Song
5. Depiction
6. Riddles
7. Jazz Chant

....(using prepositions)

1. Rod Images
2. Action Sequence
3. Put It There
4. Where's The Plug?
5. Discovery
6. Picture Sequence

EVERYDAY ENGLISH

....(socializing/getting along)

1. Chain Drill
2. Photo Introductions
3. Recitation
4. Characters
5. Puppets
6. Telephone Invitation

....(common workplace exchanges)

1. Role Play
2. Constructalog
3. Dialogue Grids
4. Cummings Device

....(carrying out job routines)

1. Spiel
2. Complimentary Actions
3. Interview
4. Double Circle
5. Picture Sequence
6. Open-Ended Story

GOING FURTHER

1. Picture Cues
2. Sentence Chains
3. Humming Sentences
4. Find The Problem
5. True and False
6. Maybe
7. Picture Story
8. Real English

The purpose of these activities is to practice giving and following instructions for using tools/materials or completing a specific task.

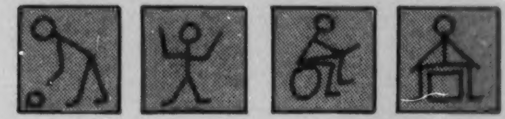
1. Simon Says. Distribute sets of four to five tools or materials to each student. Give a series of instructions (e.g. "Pick up the drill." or "Show me the screw."). Students must respond only to instructions preceded by "Simon Says." Give students a mark if they don't follow instructions correctly. Vary this by including instructions with "don't" or adding prepositions of location. For beginning students, drop "Simon Says" from the orders.

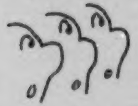
2. Ask For It. Prepare a set of cards with pictures of the tools and materials. Put an assortment of tools and materials on the table. Students turn over a card and must ask for the item they see on the card (e.g. "Give me the razor knife."). Other students must give them the item. Vary this by adding symbols for "him" and "her" on the cards.

3. Operation. Bring in a small electrical appliance or tool. Give the students directives for operating it (e.g. "Plug it in." and "Turn it on."). Have them practice giving and responding to instructions. For advanced classes, ask them questions about their actions (e.g. "What are you doing?" or "What are you going to do?").

4. Hans' Game. Gather some tools and materials used in previous lessons. Divide the materials into two identical groups, each on one side of the room. Put the students into two teams. Call out a command (e.g. "Put the pencil in the bucket."). One student from each team runs to a group of tools and materials and performs the action. The one who completes the action first gets a point for the team.

5. Tell Me How To Draw It. Prepare several cards in advance with stick figures and simple shapes drawn on them. Don't draw with too much detail. Give the prepared cards to the class. The students give you instructions to draw the same thing on the blackboard. This activity allows for the reinforcement of clarification language. Ex:





Student: Draw a line.
Teacher: A straight line?
Student: Yes.
Teacher: To the left?
Student: No, to the right.

Do the Same. For advanced classes, have students work in pairs, each with the same set of shapes. One student places the shapes on the page to make a design and gives the other instructions to make the same design (e.g. "Put the square next to the triangle."). One option is to have the students sit back-to-back.

The purpose of these activities is to practice giving and following instructions to follow a sequence or to complete an activity.

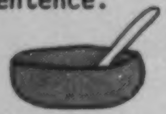
1. Tell Me What. Present the instructions for the steps of the activity by miming the actions. Students say the instructions.

2. Safety Sequence. Give instructions to the students to use, for example, a saber saw safely. Use warnings (e.g. "Like this. Not like that.") as you demonstrate the procedures. Have a student follow your instructions.

1. Put on the glasses.
2. Plug in the saw.
3. Hold the saw.
4. Turn on the saw.
5. Use the saw.
6. Turn off the saw.
7. Unplug the saw.

As an option, introduce negatives (e.g. "Don't turn it on.").

3. Soup. Ask the group to "build" a recipe from one initial sentence.



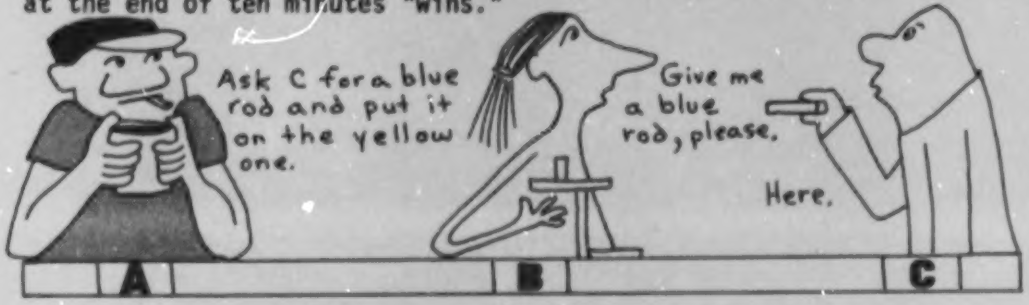
Teacher: Put ten cups of water into the soup.
Student: Put ten cups of water and three carrots into the soup. etc.

The last person in the group has to repeat the entire recipe. This can be played as a team game with groups. As a follow-up, have the students buy all the items on the "shopping list" from a simulated store and report the costs to the class. One option is to have upper level students use newspaper ads to find out costs.

4. Foreman. Divide the class into groups of three. The teams compete with each other to build the most complex structure possible using Cuisenaire rods. Each group has 10 minutes, however, each direction must be relayed from the "foreman" to the "workers." Ex:

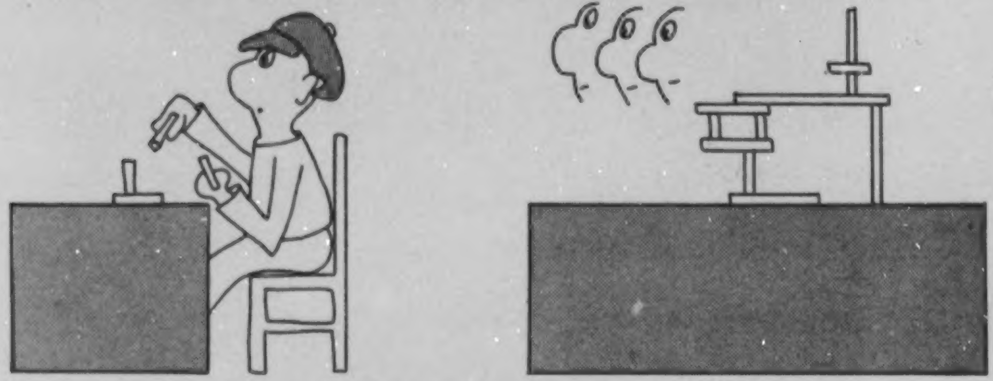
Student A ... (foreman)	"Ask C to give you a red rod." some rods."	(said to B)
Student B ... (worker)	"Please give me a red rod." some rods."	(said to C)
Student C ... (worker)	"Here's the red rod." "Here are the red rods."	(said while giving to B)

B then begins making a structure with the first rod. Each direction is relayed from A to B to C. The group with the most complex structure at the end of ten minutes "wins."


Ask C for a blue rod and put it on the yellow one.
Give me a blue rod, please.
Here.
A
B
C

More activities to practice giving and following instructions.

5. Construction Worker. A group of 3 students build a structure with rods. The others in the class can see it but the "construction worker" cannot. The class then gives instructions to him/her to build an identical structure. No gestures can be used--only English.



6. What Should I Do? As a review of an instruction sequence (e.g. soldering a wire, drilling a hole), the class instructs one student on the steps to follow. Beginning level students giving instructions can be cued with picture cards. At the end of each step, the student being instructed must ask "What should I do (now)?" or "What next?" Vary this by requiring clarification (e.g. "Clean enough?", "OK?", "Straight enough?").

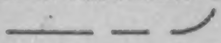
CLEAN ENOUGH?

The purpose of these activities is to practice giving, asking for and receiving clarification in the performance of a task.

1. Gossip. Do this with the entire class or divide the class into two groups. Write a word or sentence on a card and give it to the first student. The first person whispers the word or sentence to the next student, and so on. The last person reports the word to the class. This is then compared with the original word. One option is to start the "gossip" orally or with a picture rather than with a written card. Use this activity to introduce the need for seeking clarification when a statement is not clearly understood.

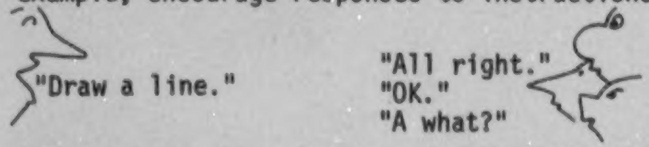
2. Intonation. Have students practice asking for clarification of instructions. To cue students, draw lines on the blackboard to show the change of intonation that occurs when a statement becomes a question.

Unfold the box.



Unfold the box?

3. Rituals. Begin a routine of expecting your students to verbally respond to instructions and questions. Encourage them to answer in complete sentences (e.g. "They're pens." instead of "Pens."). Also establish predictable verbal exchanges with students to give them practice. For example, encourage responses to instructions:



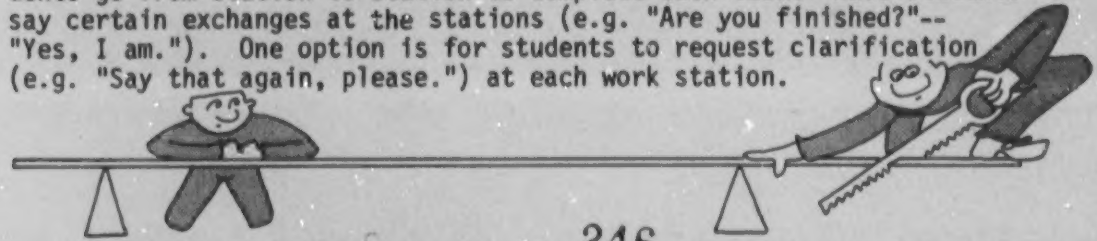
"Draw a line."

"All right."
"OK."
"A what?"

4. Situation. To present "I don't understand," deliberately mumble an instruction so that students are unable to hear or understand it. Then ask, "Do you understand?" and elicit an appropriate response (e.g. "No, say it again." or "No, show me."). Follow this with a clear instruction and ask the question again, this time eliciting, "Yes, I do." Encourage students to communicate orally--not only by nodding or shaking the head.

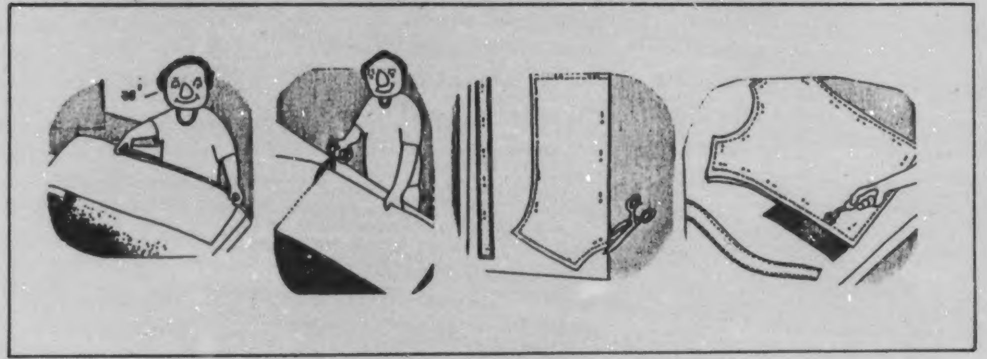
5. Whatsit. Put several objects around the classroom. The students know the names of some of the objects, but not all. Ask the students to give you the objects they know. Then request the other objects. Use students' lack of comprehension to introduce expressions for requesting clarification (e.g. "The what?" or "What did you say?").

6. Work Stations. As a review, set up six work stations, where there are simple tasks to do (drilling a hole, tightening a screw, sorting red bottlecaps from black ones). Assign one student "supervisor" to each station to give commands to complete the task. The other students go from station to station to complete each task. Have students say certain exchanges at the stations (e.g. "Are you finished?"--"Yes, I am."). One option is for students to request clarification (e.g. "Say that again, please.") at each work station.



More activities to practice clarification.

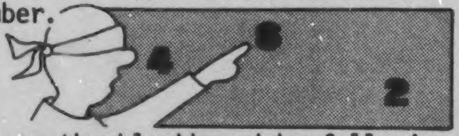
7. Task Cards. Illustrate simple multi-step tasks and distribute to pairs of students. Give no oral instructions. Students "read" the task cards and must ask for clarification when they don't understand a step. Note: Although pairs of students work separately, some tasks may be the same so that finished products can be compared.



Instructions

The purpose of these activities is to practice giving and following instructions to find or locate something.

1. Number Search 1. Write several numbers well apart on a blackboard. Blindfold a student. Call out a number.



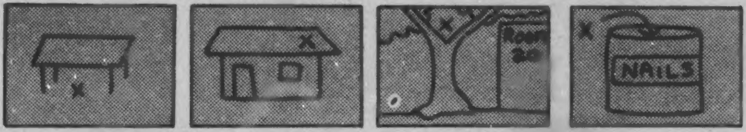
The student tries to find the number on the blackboard by following directions from the other students (e.g. "Up.", "Down.", "Go left.").

2. Number Search 2. Do the activity above but use three-dimensional letters on a table. The blindfolded student tries to find the number called. Vary this activity by asking the students to give incorrect or unhelpful directions to create the need for clarification.

3. Find It. Send one student outside the class. Hide an object in the class. Call the student inside. Each of the students will give one direction which will lead the person closer to the object (e.g. "Walk forward two steps.", "Turn left.", "Go to ___"s desk.").

4. Floor Map. Use chalk to mark off the classroom floor into aisles in a hardware store. Give the students a series of directions to follow--orally or on picture cards. One option is to use the classroom furniture to mark off aisles and sections.

5. Treasure Hunt. The activity can be played by groups or individually. The teacher places cards at different points around the room or outside. The activity begins when the teacher gives the students the first card. The card directs the students to another point where they will find the second card--and so on. The game ends when one of the students finds the last card--and the "treasure."
Sample cards:



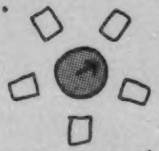
6. Go Get. Put tools in buckets. Place them at various points around the room but well away from the teacher and students. The teacher, in an uninterested manner, asks a student to go get a particular tool or set of tools. The teacher's request provides minimal information and no further information should be given unless the student asks for clarification. The other students observe. The teacher does not follow the movements of the student--only examines and comments on what is brought. Vary this by sending more than one student to go get items at one time.

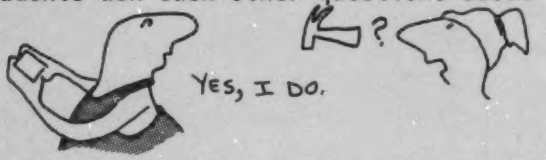
7. Put Away. Ask the group to "build" a request from an initial sentence. Teacher: "Put away the saw." Student: "Put away the saw and the drill.", etc. Vary this by changing the request to "Go get the _____." or "Bring me a _____."). Each student adds an item.

The purpose of these activities is to practice asking and responding to questions with DO.

1. Go Fish. Prepare sets of duplicate cards with pictures of common objects or tools. In groups, students ask each other for cards to make pairs. (e.g. "Do you have a hammer?"--"Yes, I do."/"No, I don't. Go Fish.").

2. Spinner. Tape six small pictures of tools on a spinner card so that you can remove them easily. Before one student spins the arrow, another looks at the pictures and asks about one (e.g. "Do you have a saw?"). The first student spins, and gives the answer the arrow indicates (e.g. "Yes, I do." or "No, I don't. I have _____."). The first student then removes the picture from the spinner card. When all the cards are removed, the students ask each other questions about the ones they have.





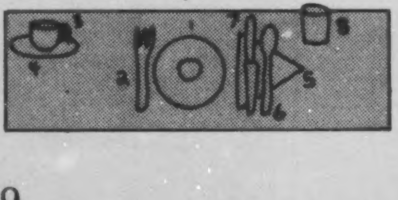
3. Cue Cards. Choose an activity students are already familiar with. Tell the students that you are going to prepare to do the activity once again. Prepare cue cards with illustrations of different tools and materials necessary to complete the activity as well as materials that are not necessary. Shuffle the cards and put them face down in front of the students. As each student picks a card, the other students ask, "Do you need a _____?" The student looks at the card and answers appropriately.

4. Did She? Prepare a picture sequence of someone completing an activity. Put the pictures on cards and allow the students to study them. Afterwards, ask the students questions about the pictures (e.g. "Did she have a screwdriver?" or "Did she saw a piece of wood?"). Vary this by removing the pictures when asking the questions.

5. Out Of Sight. Put the students into two groups. Partition the class so that the two groups cannot see each other or send one of the groups outside to work. Each group should perform a simple task (e.g. hammer nails into a board, use a rasp, measure a piece of wood). Afterwards, each group asks questions ("Did you _____?") to discover the tasks performed. One option is to present a selection of tools to cue student questions.

6. Banana. A student or the teacher chooses a verb but does not tell the class. The others try to guess the verb by asking Yes/No Questions using the noun banana in place of the verb (e.g. "Do you banana?", "Do you banana at home?", "Do you banana in your car?").

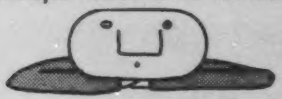
7. Food Service. Use a spinner board with numbers 1-8. The numbers correspond to items in a place setting. Each student spins in turns to try and make a complete place setting. For example, a student spins 4. Teacher: "Do you need a fork?" Student: "Yes/No." Teacher: "Go get one./OK."

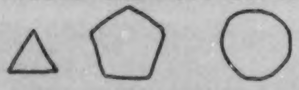


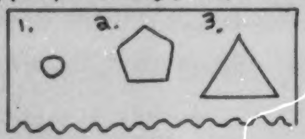
Yes / No Questions

The purpose of these activities is to practice asking and responding to questions with BE.

1. Twenty Questions. Put the names or pictures of several items on index cards. A student takes a card and then responds to questions from the others who try to find out what it is (e.g. "Is it a ___?").
2. Question-Answer Practice. On the table, put an assortment of tools in various "states" (hot, cold, on, off, clean, dirty, safe, dangerous). Point to a tool and ask a question (e.g. "Is it hot?"). Students give the appropriate answer (e.g. "No, it isn't [hot].", "Yes, it is.").
3. Memory Table. Bring 5-20 objects and put them on the table covered by a cloth. Remove the cloth for 20-30 seconds to allow the students to study items. Then cover them with the cloth. Have the students work in two groups to record what they saw. Members of one group then take turns asking members of the other the question, "Was there a _____?" Often, they suggest an item that was not there to try to elicit an incorrect response from the other group. Each group has a chance to ask questions. Answers are then checked by removing the cloth again. As an option, ask students to remember the position of items (e.g. "Was there a hammer between the nail and the screw?").
4. Memory Picture. Vary the activity above by asking the students to draw what they have seen on the table. Afterwards, the students instruct the teacher to draw a "consensus picture." Expect lively disagreements about sizes, colors and locations.
5. Detective. Have one student leave the class. The others choose one student to perform a simple action (e.g. saw a piece of wood, hammer a nail). The student returns and tries to find out who did it by asking questions (e.g. "Was it a man?", "Was it her?", "Was it Yan?").
6. Find That Shape. Have students work in pairs, sitting back to back. One student gets a cardboard shape. The other asks questions to find out what it is (e.g. "Is it a triangle?"). For advanced students, add more shapes and have students find out where they are placed (e.g. "Is the triangle on the square?"). One option is to add shapes of different colors and sizes.
7. Too Big/Too Small. Give each student a worksheet with four shapes drawn on it. Prepare a set of cards. Each has one of the same shapes but smaller or larger than those on the worksheets. Shuffle the cards and put them face down. A student chooses one card and puts it beside the worksheet. The teacher (or another student) asks, "Is it the same?" The student responds, "No, it's too small" or "No, it's too big." If the student responds appropriately, he/she keeps it. The winner collects the most cards.







More activities to practice asking and responding to questions with BE.

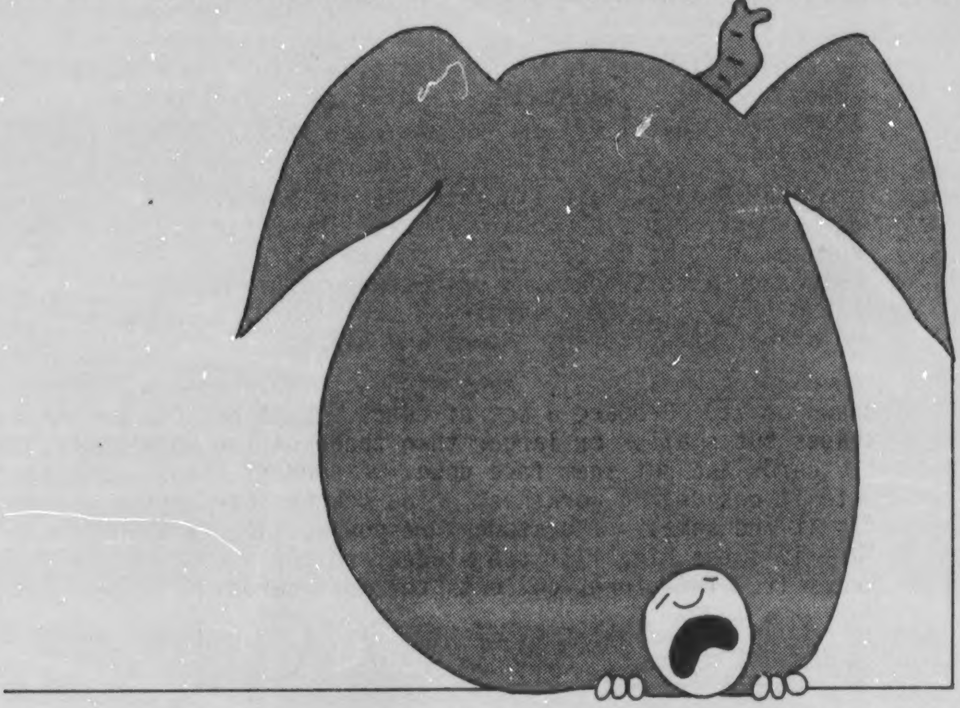
8. Hidden Actions. Behind a screen or on the other side of a wall, a student performs a continuously audible action (e.g. turning book pages, blowing his/her nose, stamping his/her foot). The students ask questions to determine the action being performed. (e.g. "Are you blowing your nose?").

9. Box and Bag. One team has a box and the other a bag. Both teams have familiar objects in a bucket. Each team selects an object from their bucket and puts it in their box or bag without showing it to the other team. The teams face each other. Each member of Team 1 asks questions of someone in Team 2. Ex:

Team 1	Team 2
What is in our box?	Is it a ball?
No, it isn't. What is it?	Is it a nail?
No, it isn't. What is it?	

Each team keeps the objects they correctly guess or which the other team fails to guess. The team with the most objects in its bag or box wins the game.

10. Noticing. Divide the class into two groups. Send one group outside. Each of the students remaining in the class changes the position of one object (e.g. puts a book on the floor, puts the chalk on the teacher's desk, closes one of the windows). Call the group outside back to the room. Ask the question, "What's different?" Each one suggests one thing that was changed (e.g. "Is it the book?").

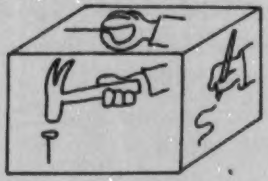


Yes / No Questions

The purpose of these activities is to practice asking and responding to questions with CAN.

1. Can You? Give each student a few materials, but not enough to complete an activity. Ask students questions about tasks they are not able to do (e.g. "Can you pin the cloth?" or "Can you cut that?"). Students answer (e.g. "No, I can't.") and give a reason (e.g. "I don't have pins."). Vary this by requiring students to respond to questions using informal English (e.g. "Canya _____?", "Couldya _____?" and "Couldn'tya _____?").

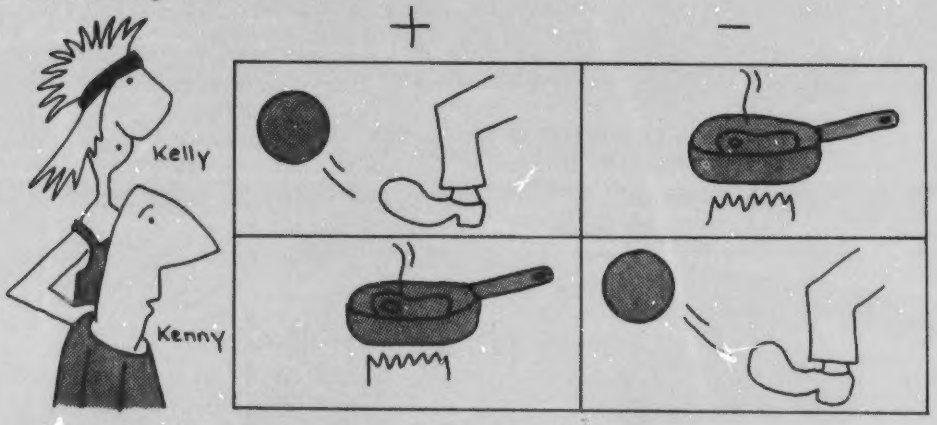
2. Cubes. Put pictures of various actions on six sides of a cardboard cube. Students throw the cube and look at the picture facing up. One student asks the question (e.g. "Can you saw?") and another gives the appropriate answer (e.g. "Yes, I can." or "No, I can't.").



One option is to throw two cardboard cubes. The student then makes one positive and one negative statement (e.g. "I can't cook. I can sew.").

3. Spinners. Prepare a spinner card with pictures of people doing various activities. A student spins the arrow and asks one of the other students, "Can you _____?" The other student answers, "Yes, I can," or "No, I can't."

4. Fluency Square. Use a fluency square to practice questions and answers using can.



Ex: Can Kelly cook?
Yes, Kelly can cook.
Can Kenny cook?
No, Kenny can't cook.

Also, use the fluency square to monitor pronunciation.

The purpose of these activities is to practice asking and responding to questions using the questions word WHAT.

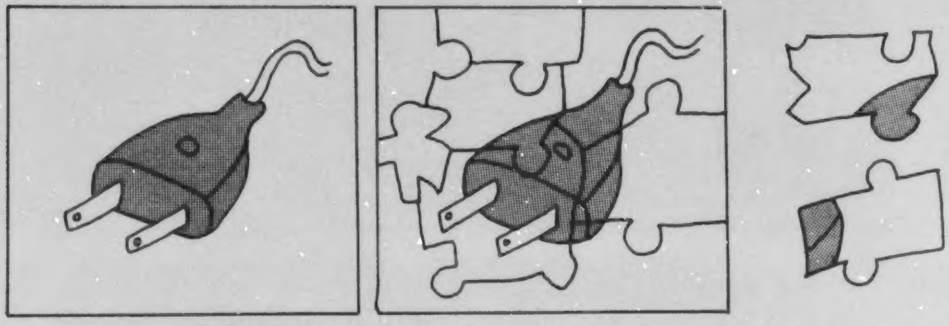
1. Wrapped Objects. Collect a number of objects and wrap them in paper. Call 5 or 6 students in front of the class. Tell them to put their hands behind their backs. Put a wrapped object in each of their hands. Members of the class ask, "What is it?" and each student, one at a time, will try and guess saying, "It's a _____." Advanced students can also ask, "What do you use it for?" or "What do you need it for?"

2. Keep It. Have students sit in a circle. Give each person two or three of the same tool. The students ask each other, "What are these?" If a student answers correctly (e.g. "They're needles."), she/he keeps the tools. If not, she/he gives up the tools. Vary this by having students ask and answer Yes-No questions (e.g. "Are these _____?") or questions with "How many?" Students must answer the questions correctly or lose a tool.

3. Jelly Beans. Do the activity above but use jelly beans instead of tools Students ask, "What color are these?" and keep them only if they answer correctly. Note: Use other types of candy if jelly beans are not available.

4. Question-Answer Practice. Distribute an assortment of tools, materials and other objects to students. Students ask each other in succession, "What do you have?" and give the appropriate response (e.g. "I have a ruler."). Vary this by having students ask, "What do you need?" As a follow-up, put students into small groups to ask each other questions about what objects they have.

5. Puzzle. Draw a simple object on a large piece of poster paper (2' x 3'). The object should be something students are already familiar with. Cut the poster paper into 10-15 pieces. Put the students into two groups with the puzzle pieces between them face down. In turns, a member of each group takes a puzzle piece, puts it face up and tries to connect it to the others. Each time a puzzle piece is selected, the other group asks questions (e.g. "What is it?" or "What do you think it is?"). The group selecting a puzzle piece can make only one guess each turn. The winning group guesses the object first.



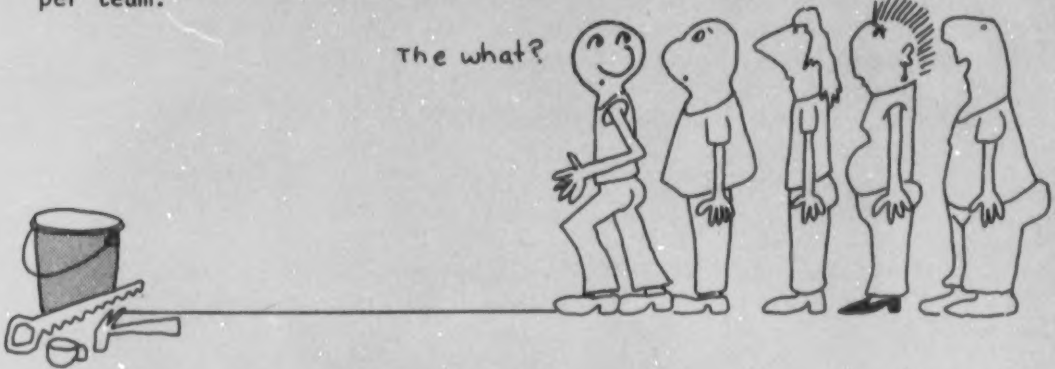
More activities using the question word WHAT.

6. Missing Pictures. Prepare a set of pictures in which something is missing or needed (e.g. a flashlight without a bulb). Use the pictures as cues when modeling the question "What do you need?" and the response "I need a _____." As a follow-up, have students make their own pictures with something missing. Have them work in small groups to ask and answer questions about their pictures.

7. Getting Your Own Back. Collect one or more items from each student. They get their items back by responding to the question, "What do you need?" with "I need my _____." Vary the activity by demanding pronunciation accuracy. Keep the item if the student gives an incorrect response.

8. Situation. To present the meaning of "need," mime various tasks (e.g. cutting paper with your fingers, drilling without a drill bit, sanding with white paper). Ask students, "What do I need?" Elicit the response, "You need _____." As a follow-up, have students mime tasks.

9. The What? Use this activity to practice clarification. Have the students form two lines at one end of the room. At the other end of the room, place two buckets and an assortment of tools and materials. The last person in each line gives the first person an order (e.g. "Put the saw in the bucket."). Before the first person can move, however, he/she must ask, "The What?" and get an answer. The first person then runs to the team's bucket, puts the item in and goes to the back of the line. The game continues until all the items have been placed in the two buckets. The winning team has the most items. One option is to use two different colored buckets per team.



Note: The question word WHAT is often used to identify vocabulary items (e.g. "What is it?", "What is this?" and "What do you have?"). It is important to remember that students do not need to know the name of every item they use.

The purpose of these activities is to practice asking and responding to questions using the question word WHICH.

1. Comparisons. Collect a variety of objects (books, chairs, tools) and put them in the front of the room. Point to two objects and elicit a statement of comparison (e.g. "That one is bigger.") from the students. Then, students ask questions (e.g. "Which one is bigger?") of each other. Vary this by asking students to compare lengths, widths, heights and weights.
2. All The Same. Have students sit in groups of three or four. Give each group the same assortment of tools, appliances, materials or attribute cards. Ask different questions using the word WHICH (e.g. "Which ones are green?", "Which ones are electric?" or "Which ones are longer than this [show something]?"). Students work in groups to arrange their items in response to the questions. As an option, ask some students to respond orally to the question. Increase the complexity of questions with advanced students (e.g. "Which ones are green, electric and longer than this?").
3. Beauty Contest. After an activity, put each product on a table and label with a number. Divide the students into groups of three "judging committees." Students examine the products and confer in their groups to answer the question, "Which one is best?" and award three prizes (good, better and best). The committees present their results.
4. Which One? Use this activity to practice clarification. Have the students sit in a circle. In the middle of the circle, place at least two of several different items (e.g. a hand saw, a saber saw, 5" nails, 2" nails, a long piece of wood, a short piece of wood). One student begins by saying, "Please give me the saw." Before the next student can do it, he/she must ask, "Which one?" and get an answer (e.g. "The saber saw." or "That one."). The student then picks up the item requested. The activity continues until everyone has a chance to request and receive an item.

NOTE: Remember to refer to these activities when looking for exercises comparing objects.

Question Words: Where **Language**

The purpose of these activities is to practice asking and responding to questions using the question word WHERE.

1. Remember Where. Put an assortment of tools and materials in three places on a shelf (top, middle, bottom). Give students time to study the three places, then gather the objects in another location. Ask students questions (e.g. "Where was the _____?"). Students anwer (e.g. "On the top shelf." or "It was on the top shelf."). Advanced students can also practice "On the left." and "On the right."

2. Stations. Place items of different sizes, weights and colors in four separate corners of the room. Label the stations A, B, C & D. Put students in groups of three. Give each group one answer sheet to complete. Ask a question (ex: "Where is the longest screw?"). Students travel in their groups to each station to find their answer and record it on their answer sheets (e.g. 1. A). For advanced classes, use a more complex coding system or more stations.

3. Cummings Device . Have students practice the exchange:

A: What do you need?
B: I need a ___1.___. Where can I buy it?
A: In the ___2.___.
B: Where is it?
A: It's ___3.___.

1. saw
   yes
2. hardware store
   supermarket
3. over there
   right here

On the blackboard, put names or pictures of a few possible answers for each slot. Have the students practice the exchange by substituting various expressions. As a follow-up, have students add their own expressions for the slots.

4. Map Dyad. In pairs, students work to complete information that is missing on each of their maps. The maps are of the same area except each has names of places that do not appear on the other. Students ask each other questions to get the information, e.g. "Where's the _____?" Put the pairs back-to-back, so one can't see the other's map.

5. What Am I Thinking Of? One of the students is asked to think of an object at home or from the workplace. The student whispers the name of the object to the teacher. The student asks, "What am I thinking of?" The members of the class each try to find out by asking questions (e.g. "Where do you keep it?", "Where do you use it?", "Where can you buy it?").

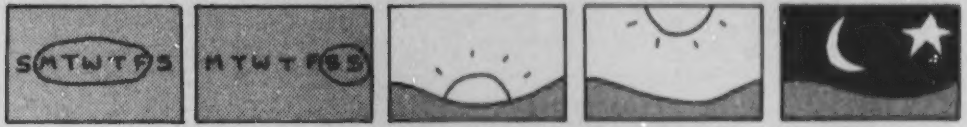
6. Maze Pairs. Have students sit back-to-back. Each student has the same maze drawn on a piece of paper. With a pencil, one student in each pair draws lines to show how to get out of the maze. The students then give oral directions to their partners helping them to get out in the same way. The students following directions must ask questions using where (e.g. "Where do I go [next]?", "Where do I turn?", "Where do I stop?") after each instruction. Mazes are compared at the end of the exercise. Note: Identify a starting point on the maze ("You are here." or a ●).

Question Words: When

The purpose of these activities is to practice asking and responding to questions using the question word WHEN.

1. Spinners. Prepare a spinner card which includes times. Prepare another spinner card with pictures of activities (eating, sleeping, working). One student spins the arrow on the activity card to cue the question (e.g. "When do you eat lunch?"). Another student spins the arrow in the time card to cue the answer (e.g. "At 12:00."). One option is to have the students follow their answers with a question (e.g. "At 12:00. When do you eat lunch?").

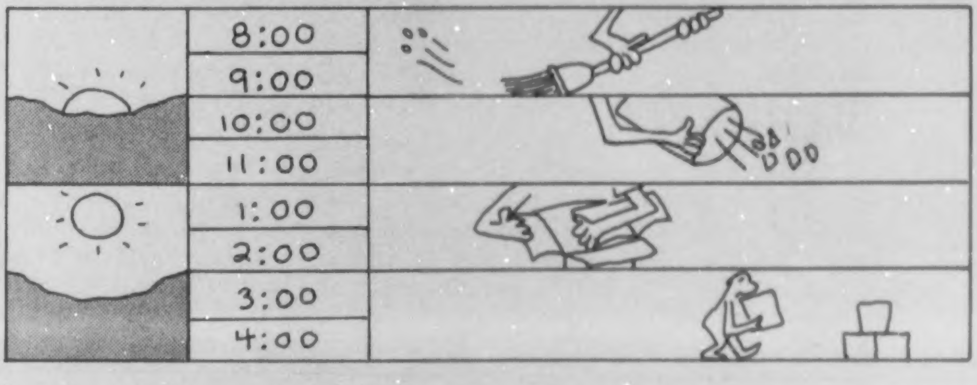
2. Picture Cues. Prepare a set of pictures to cue responses to questions.



   (e.g. "When do you go to work?" with the answer, "In the afternoon."). One option is to use the picture cues with a cardboard clock to create a more exact response (e.g. "At 3:00 in the afternoon.").

3. Cubes. Put written times on the six sides of a cube. Have the students form two groups. A student in one group asks a question (e.g. "When do you finish work?"). A student in the other group throws the cube to cue the answer (e.g. "At 4:00"). Vary this by using other cubes with days of the week, months of the year, years, clock faces, etc.

4. Daily Routine Chart. Prepare a chart with pictures of a mythical person's activities on-the-job and parts of the day (e.g. "I make boxes." "In the morning."). Use the chart to ask questions (e.g. When do you _____?") and to elicit a statement from students. As a follow-up, have students make a chart of their own activities and daily routines. Ask them to prepare a short "speech" where they use their charts to explain their routines. For advanced students, add the time of the day.



More activities to practice using the question word WHEN.

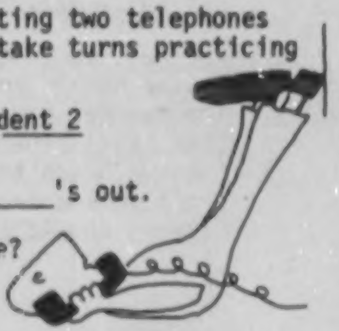
5. When What? Use this activity to practice clarification. Deliberately mumble different parts of the same question. Ex:

Teacher	Student
When wm wm wm wm wm?	When what?
When did you wm wm wm?	When did I what?
When did you buy wm wm?	When did I buy what?
When did you buy the wm?	When did I buy the what?
When did you buy the boards?	At _____:00.

Students repeat only what they understand and add the word what. Repeat the activity using another sentence.

6. Telephone Message. Put up a partition separating two telephones or have students sit back-to-back. Students take turns practicing the following exchange:

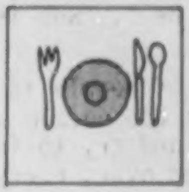
Student 1	Student 2
Hello.	Hi.
Is _____ there?	Sorry, _____'s out.
Tell _____ to call me.	When?
Tonight.	What time?
At _____.	OK.
Thanks.	

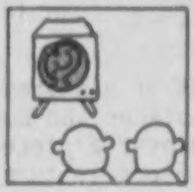


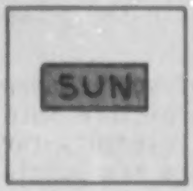
7. Telephone Invitation. Students take turns practicing the following exchange.

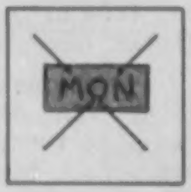
Student 1	Student 2
Hello.	Hi.
This is _____.	Hi _____.
Can you come here?	When?
Today.	Sorry. Not today.
OK. When?	Monday.
OK. See you Monday.	OK.

One option is to cue student questions and answers with words or pictures. Ex:









Note: Refer to Literacy Activities (Time) for additional ideas.

Question Words: Who

The purpose of these activities is to practice asking and responding to questions using the question word WHO.

1. Who Has What? Put an assortment of tools, materials and objects in a large box. One by one, students take an item from the box, hide it from view and return to their seats. In response to the question, "Who has the pencil?", students then say who they think has the item (e.g. "Lee has the pencil."). Students confirm or deny (e.g. "Yes, I do.", "No, I don't.", "No, she doesn't.").

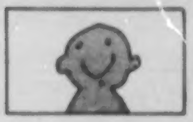
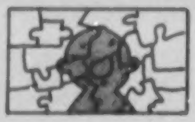
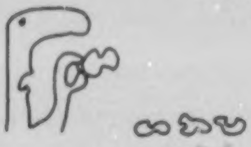
2. Who Is It? Blindfold one student. Have another student stand in front of the blindfolded student. The class asks, "Who is it?" The blindfolded student tries to answer the question by touching the hands or face--only. After a guess, one option is to ask advanced students a follow-up question (e.g. "How do you know?").

3. Who Me? Each student chooses a number. The teacher says, "John lost a hammer and Number 6 found it." Number 6 says, "Who me?" The teacher says, "Yes, you." Number 6 says, "Not me." The teacher says, "Then who?" Number 6 says, "Number 12." Number 12 says, "Who me?" and the game continues. Students who make mistakes or don't follow the correct pattern are eliminated from the game. Players should pretend to be angry as they say "Not me."

4. Who? This is an activity to practice clarification. Students sit in a circle. Each student in the circle holds a familiar item (a piece of paper, a notebook). One student begins by asking a question (e.g. "Who has the paper?"). Any student can give the name of the person who has it. The first student then must ask a second question, "Who?" which requires the name to be repeated. The student answering the first questions then asks a new question (e.g. "Who has the ruler?") and the activity continues.

5. Characters. Have students sit in a circle. Each has a picture of someone working in a common entry-level job. Students use the pictures to introduce themselves (e.g. "I am Lee. I work in a factory. I am an assembler."). Remove the pictures. Have each student try to remember the name and job of every character, in response to questions from others in the group (e.g. "Who is he?", "Who is the stock clerk?").

6. Puzzle. Use photos of your students or pictures of people in common occupations. Cut one picture into pieces and put the puzzle pieces face down. In turns, students turn over a piece and try to identify the whole. Each time a new puzzle piece is turned over, everyone asks, "Who is it?"

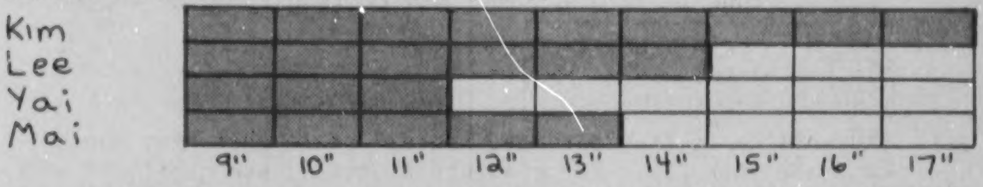




Question Words: Whose — Language

The purpose of these activities is to practice asking and responding to questions using the question word WHOSE.

1. Whose Is It? After students have completed an activity, divide the class into two groups. Students in one group exchange their products with the other group. The first group asks the second to identify the owners (e.g. "Whose is this?" or "Is this yours?"). Students answer in complete sentences. The second group then asks the first group questions. As a follow-up, students write the owner's names.

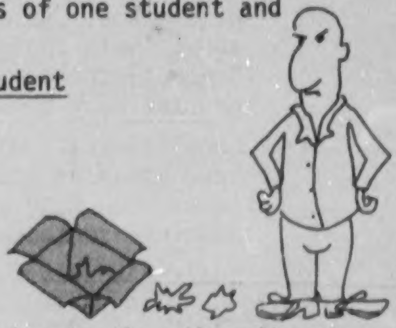
2. Chart Practice. Use a bar graph as a basis for questions and answers (e.g. "Whose is longer?"--"Lee's is longer."). For advanced classes, vary this by asking them to give a 30-second "spiel" (talk) based on the information in the chart.



3. Whose Mess? Use this activity to practice clarification. Identify 5-6 items at points around the room (a mess, a worktable, a notebook, a hardhat, an ID, a lunch). Students should already be familiar with the names of the items. Introduce and practice the questions to be used (e.g. "Whose mess is this?", "Whose mess?" and "Whose?") by simulating a conversation between an employer and an employee in a noisy workplace. Begin by asking questions of one student and then continue with other students named. Ex:

Teacher	Student
Yan, whose mess is this?	Mai's.
Whose mess?	Mai's.
Whose?	Mai's.

Mai, is this yours?	No.
Well, whose mess is it?	Cam's.
Whose mess? etc.	Cam's.



Periodically, shift the focus of the questioning to the other items. Vary this by allowing students to do the questioning. Add an element of humor by making the employer seem to be angry.

4. Game Language. When playing any game where students play in turns, ask the question "Whose turn is it?" Encourage the students to ask the question, of each other.

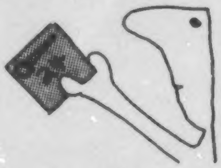
5. Getting Your Own Back. Collect one or more personal items from each student and put them in a box. In turns, students pick up one item in the box and ask, "Whose _____ is this?" The owner must respond in a complete sentence to get it back (e.g. "It's mine." or "That is mine.").

Language — Question Words: How

The purpose of these activities is to practice asking and responding to questions with HOW LONG, HOW MANY and HOW MUCH.

1. Spinners. Put an assortment of tools and materials on the table. Use a spinner board and a spinner card (numbers 1-5) and set of flash cards with pictures of the tools and materials. Students turn over a card and spin the arrow. They then take that number of items on the card. Students ask and answer questions (e.g. "How many?", "How many _____ should I take?", "How many _____ do you have?").

2. Hardware Store. Set up a "store" in one corner of the room. Prepare task cards for each student. Each task card has the picture of a tool and the number required. Ex:



Students go to the "hardware store," state what they want, ask the cost and then pay. For advanced students, ask questions afterwards using the past tense (e.g. "What did you buy?", "How many did you buy?", "How much was it?", "How much change did you get?").

3. How Many/How Much? Students sit in groups around tables. On each table, put various materials (e.g. piles of sand, salt, sugar, beans, bottlecaps). Give each group index cards with the words HOW MANY? or HOW MUCH? written on them. Each group matches the cards with items. As a follow-up, have students, ask and answer questions about their choices (e.g. "How much sand is there?" with the answer, "[About] one cup."). Note: to help students make their statements provide each group with a cup, teaspoon and tablespoon.

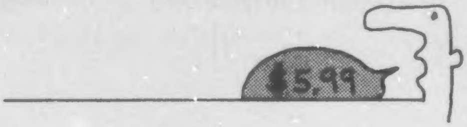
4. Long Answers. Use structures with "There is" and "There are" for more advanced students and add additional conversational language (e.g. "How many are there in your family?"). Have them answer in complete sentences.

5. Chart Practice. Students "read" a chart to ask and answer questions.

NAME	AGE	SEX	MARRIED	CHILDREN	EMPLOYED
Lee	31	M	NO	No	YES
Ya	18	F	YES	YES	NO

One option is to have groups of students make their own charts first.

6. The Price Is Right. Put various items in front of the class. Write their prices on index cards and place them face down beside each item. In response to questions (e.g. "How much is this?", "How much is this _____?", "How much do you think this is?") students decide the correct price of each item and record their guesses. One option is to play this as a competition between teams.



The purpose of these activities is to practice making and responding to requests using CAN, COULD and WOULD.

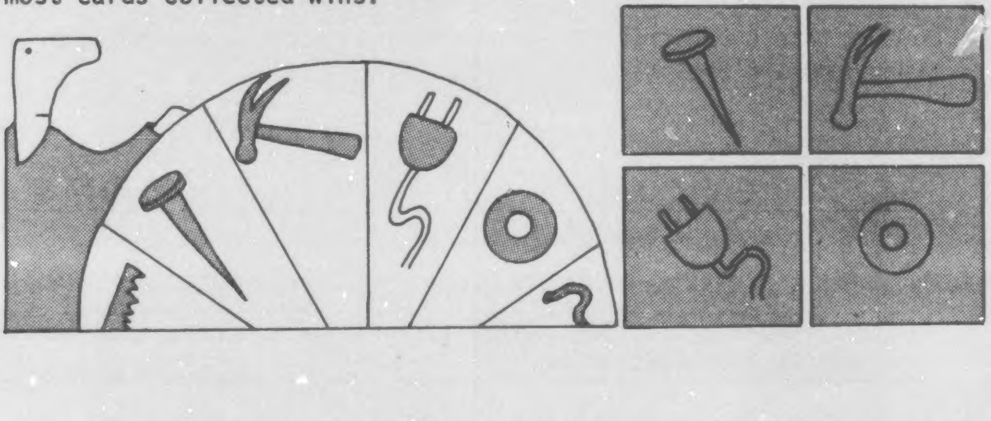
1. Can You? Present the structure "Can you _____?" as an option for making requests. Have students practice directives (e.g. turn on the lights, clean up, help me) with "can you."

2. Role Play. Present the request, "Would you _____, please?" and the response, "Thank you." Ask students to imagine themselves at a job and to approach you (an American co-worker) to request something. Vary the role play by expressing misunderstanding or asking for clarification (e.g. "The saw?", "What?") to give students additional practice. Require students to repeat or rephrase the question until you understand.

3. Can I Have Some Nails? Before students begin on activity, have them ask for the materials or tools they need. Play the role of a "parts clerk" and give them what they ask for. Vary this by deliberately giving students the wrong items (or not enough) to give them more language practice. An option is to require pronunciation accuracy.

4. Cubes. Put pictures of household problems on the six sides of one cube (e.g. burned out light bulb, broken toilet, leaking shower). On another cube, put possible solutions (e.g. call the landlord, go to the hardware store, fix it yourself). Put the students into two groups--the Tenants and the Landlords. Give each a cube. One of the Tenants throws the "problems" cube. One of the Landlords throws the "solution" cube. The Tenant then calls the Landlord, states the problem and requests assistance (e.g. "My toilet leaks. Can you fix it, please?"). The Landlord states his/her solution. Afterwards, students decide if the solution is appropriate.

5. Spinners. Use a blank spinner card. Put an assortment of tools and materials around it (e.g. a hammer, a nail, a saber saw). In addition, prepare a set of cards with illustrations of the various materials. Have students choose 3-4 each. One student spins the arrow on the spinner card and asks another student, "Can I borrow your _____?" The second student checks his/her cards and answers (e.g. "Yes, here it is." or "I'm sorry, I don't have it here."). One option is to play this as a competition. The student with the most cards collected wins.



The purpose of these activities is to practice forming sentences that describe or compare objects and tasks.

1. I Lost Something. Each student chooses a tool to "study." Don't look as the students make their choices. After a few moments, students put the tools in a bucket. One student begins by saying:

"I lost something." (student)
"What does it look like?" (teacher)

The student tries to describe it. Ex: "It's _____." (red, small, sharp, metal, made in Japan, new, old, long, etc.). The teacher then tries to find the "lost" tool in the bucket. Note: This activity also allows for the reinforcement of clarification language (e.g. "The red one?" or "Old?").

2. Scrambles. Prepare a set of pictures illustrating the steps of an activity. Students give the instructions for each step and then put the pictures in the correct order. Ask questions about the pictures. Then, have students describe the sequence using "first," "next" and "then."

3. Same/Different. Draw different shapes on the blackboard (for example: 5 circles--three of which are the same and two of which are different). The teacher begins by asking, "Is the first one the same as the fourth one?" or "Is this different from the first one?" Points can be given. Another option is to collect a variety of objects and elicit statements of comparison (e.g. "That one is bigger.").

4. Spiel. Have students give a short talk, where they describe a picture they have drawn to the rest of the class. As a follow-up, post the drawings and have students identify whose they are.

5. Open-Ended Task. Do an end of the unit assessment of students' overall progress. One way is to bring in an assortment of tools and materials used in previous lessons and ask students to show how to use them. Ask them to explain the names of items, to describe what what they are doing, and to describe what they could make with them.

6. My Uncle's Car. Use each letter of the alphabet except X and Z. Beginning with the letter A, each student makes an observation about an uncle's car. Ex: My uncle's car is Asian.
My uncle's car is big.
My uncle's car is cheap.

Vary this by describing a workplace, an object, a workbench, a basement, a job, etc.

NOTE: Other activities useful for practicing comparisons are listed under question word WHICH.

The purpose of these activities is to practice reporting information about objects, places, people and actions.

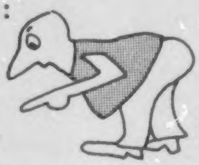
1. Color And Numbers. Use a numbered spinner board. Put a different colored bottle cap beside each number. A student spins the arrow, takes the bottle cap indicated and says, "I have (no.) (color) ones." After the game, students count and describe their bottle caps.

2. Color And Rhythm. Each student in the group chooses a color. The students sit in a circle and begin rhythmic clapping (2 claps on the knees and 2 claps with the hands). One student begins with the first hand clap and says his/her own color and on the second hand clap the color of another student. The student called must then say his/her own color on the first hand clap. The game continues until a player makes a mistake, misses a clap or can't think of the color fast enough. The winner is the last one left. One option for beginning level students is to play the game by calling names first.

3. I See. One student says: I see with my eye.
   Something beginning with B.
   The class members can each guess what the student has seen. For example, a student might say, "You see a book" or "It's the blackboard." The game continues until someone in class guesses the correct object. The game can then be played again with another student and another letter of the alphabet.

4. Which Word Doesn't Belong? Have students form two teams. Draw pictures or write columns of words on the blackboard. Ex:

1.	2.	3.	4.
wheel	apple	uncle	wire
tire	cup	sister	bulb
car	orange	city	hammer
dog	banana	mother	battery



In turns, students on each team state which items don't belong in the sets (e.g. "Dog doesn't belong with car.").

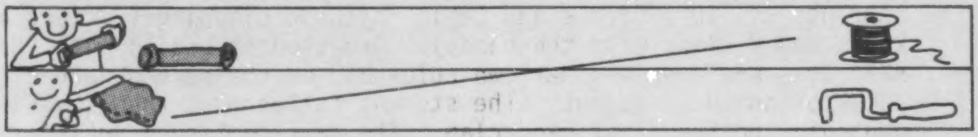
5. Memory Table. To practice vocabulary, bring 5-20 objects and put them on a table. Cover the objects with a cloth. Remove the cloth for 20-30 seconds to allow the students to study the items. Then cover them again with the cloth. Have the students work alone or in groups to record what they saw. Compare and check lists. For advanced classes, include several items that are the same so that they have to use more language to distinguish among items. Another option is for students to report their location.

6. Going To Work. The teacher or student begins by saying, "I'm going to work and I'm putting a _____ in my toolbox." The next student repeats what the first person says and adds a second item. The next person repeats the sentence and adds a third item, and so on. A student is eliminated from the game if he/she fails to remember some of the items. As an option, play the game with a set of cue cards on a table in front of the students. Vary this by changing the initial sentence (e.g. "I'm going to work and I'm taking my _____.").

More activities to practice reporting information.

7. Charades. Have students mime actions. The others guess by saying what a person is doing (e.g. "You're cutting."). Vary this by making it a contest between teams, using cards with pictures of actions as cues for students.

8. Matching. Prepare a worksheet with pictures of common occupations in one column and tools in a second column.



Students draw lines connecting each job with the appropriate tool. As a follow-up, have students make statements about their choices.

9. My Tool/Your Tool. Have students form a circle. Give each a small number of tools or other items. One person makes a false statement which the others must "correct." For example, the person points to his/her nail and says, "This is my bolt." The other students point to their bolts and say, "This is my nail." The student who makes an error goes to the center of the circle and continues the activity.

10. Stick Up. Have many cards showing simple stick figures doing different actions (running, walking, jumping). Distribute 4 cards to each student. The teacher does the action or calls out the action and the student having the correct corresponding picture repeats it and holds up the card. This could also be a competition between teams.

11. Find The Object. Divide the class into teams. Put into a large box several familiar objects. As you call out the name of an object, a student tries to find it in the box, hold it up, show it to the class and make a complete sentence (e.g. "This is a ____."). If he/she cannot find the object named, or picks the wrong one, a member of the opposing team tries to find it. Points can be given.

12. Here And There. Take three or four belongings from each student and make two piles. Students then go and look in each pile but do not remove anything from them. After a few minutes, students try to get back their belongings by correctly identifying where they are using "here" and "there" (e.g. "My knife is here. My notebook is there.").

13. Liar. Prepare a deck of tool pictures. Have four suits (colors) of each item. In each group, students distribute the cards equally. One student begins by putting two cards face down and naming them (e.g. "Two hammers."). The next student can challenge ("Liar") or lay down another card and make a statement (e.g. "One hammer.", "Another hammer." or "One more."). The round continues until someone challenges. The winner of a challenge continues the game with different items. The loser picks up all the cards on the table. The game continues until one person has no cards remaining.

The purpose of these activities is to practice asking or responding to questions using the words HOW and WHY.

1. How? On several pieces of paper write out different actions to be performed (sing loudly, run slowly, speak politely, write neatly). Put the papers into a box. Tell one student to come forward, choose one paper and do the action. The students try to guess what he/she is doing and HOW it is done.

2. Picture Interpretation. Bring in pictures of people working at various jobs, some of them safely and others not. Have students interpret the pictures, stating which are safe, which are not safe. Ask the question, "Why?" Students make statements in support of their positions.

3. Why Are You Going? Begin the exercise by asking, "Why are you going to the store?" One student responds by saying, "I'm going to the store because I need to buy some nails." The next student repeats the statement and adds another item (e.g. "and some screws"). Continue until all students have added an item. One option is to put the question and answer into the past tense.

4. Why Are You Late? Prepare a spinner card with pictures of problems (e.g. bus with a flat tire, a sick baby, a person oversleeping). A student asks, "Why are you late?" A second student spins the arrow to cue the answer (e.g. "My bus was late." or "My baby is sick."). As a follow-up, have students decide whether the excuses are acceptable or not. Vary this by changing the question (e.g. "Why were you absent?" or "Why were you late this morning?").

5. Because. This activity is for advanced students. Have students form two teams. Prepare cards with pictures of activities (e.g. writing, changing a light bulb, driving, walking). One group chooses a card and asks a question with the word WHY (e.g. "Why are you walking?"). A student in the other groups must give an appropriate response (e.g. "Because I don't have a car" or "Because I missed the bus."). The other group then chooses a card and asks another question. Points are awarded for correctly stated questions and appropriate answers. One option is to try and "stump" the other group with a series of why questions. Ex:

Group 1	Group 2
Why are you walking?	Because I don't have a car.
Why?	Because I don't have money.
Why?	Because I don't have a job.
Why?	Because I can't find a job.
etc.	

6. Why Aren't You Working? Ask groups of students to perform various tasks but give them inadequate or unnecessary tools. For example, ask one group to measure and cut five 2" strips of paper but give them a metric ruler and no scissors. Wait a reasonable period of time (3-5 minutes) for students to express their needs. If they do not, ask the question.

The purpose of these activities is to practice using PRONOUNS.

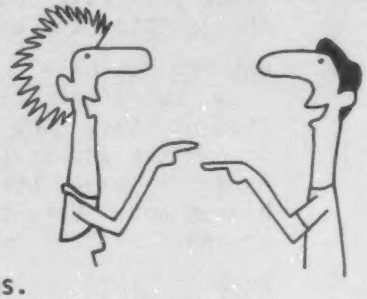
1. Demonstration. Present the demonstrative pronouns by placing some objects near you (this, these) and others farther away (that, those). Use these pronouns instead of the names of tools.

2. Spinners. Make a spinner card with different pronouns written on it (e.g. I, you, he, she, we, they, it). Students spin the arrow and make a sentence with the pronoun indicated by the arrow. One option is to make this a competition between teams. Vary this by making a spinner card with possessive pronouns (our, your, their, its, her, his, my).

3. Cubes. Write pronouns (or draw pictures illustrating them) on the six sides of one cube. On another cube draw pictures of activities (sawing wood, using a screwdriver). A student throws the two cubes and makes a sentence with the pronoun and activity facing up (e.g. "She is hammering a nail.").

4. Song. Practice singing the following song. Use gestures to indicate the students referred to.

I like you and you like me.
la la la la la la la
You like me and I like you.
la la la la la la la
I like him and he likes me.
la la la la la la la
I like her and she likes me.
la la la la la la la
We like them and they like us.
la la la la la la la
They like us and we like them.
la la la la la la la



One option is to begin with the names of your students and then introduce the pronouns.

5. Depiction. Students draw a picture of themselves at their occupation in their country. They also draw a picture of their present occupation (student) and the job they want in the U.S. Students exchange drawings and interpret the other's drawing for the class. (e.g "He was a _____. He is a student now. He wants to be a _____.").

6. Riddles. Give riddles orally and allow students to guess. Ex:

I'm square.
I have 4 legs.
I don't walk.
Guess: You are a table.

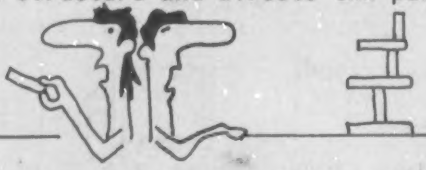
7. Jazz Chant. Use a few props and gestures to practice the chant-- "It's hers. It's his. It's not mine." Emphasize the last two words.

NOTE: More activities using pronouns appear in this section under the title Everyday English.

The purpose of these activities is to practice using PREPOSITIONS.

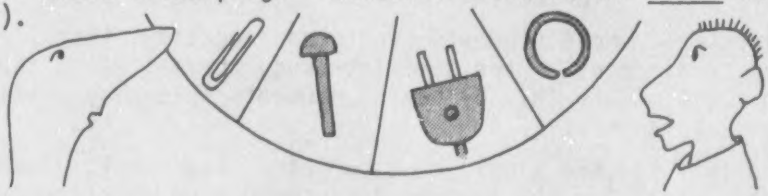
1. Rod Images. For advanced classes, have the students use Cuisenaire rods to construct a symbolic representation of a machine or simple apparatus. Have students explain their construction to the rest of the class. Allow students to express themselves without interrupting or correcting them.

2. Action Sequence. Have students direct each other to build small constructions with Cuisenaire rods (e.g. "Put the red rod on the blue rod."). For advanced classes, have students sit back-to-back. One student builds a structure and directs the partner to build the same.



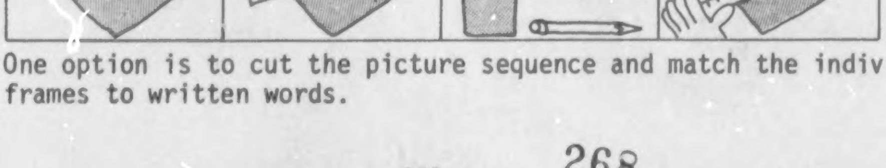
3. Put It There. Prepare cards with prepositions (e.g. in, on, under, beside, behind, between) illustrated and/or written on them. Put students in a semi-circle with a bucket and a tool in front of them. A student choses a card, reads it and places the tool in the correct position. The other students make "corrections" if necessary.

4. Where's The Plug? Use a blank spinner board. Put objects or pictures of objects in a circle around the arrow. Students spin to identify objects and their location (e.g. Student: "I need a plug." Teacher: "Where's the plug?" Student: "Between the _____ and the _____.").



5. Discovery. Before the students come to the class choose about 10 objects which normally are not in the classroom and put these around the classroom in different positions. When the students return ask them to silently try and discover where the objects are. They should not communicate their "discoveries" to their neighbors. After a few minutes, students report their discoveries (e.g. "I found a flower under the teacher's desk." or "There's a banana on the window.").

6. Picture Sequence. Have students "read" a picture sequence which contains many prepositions or prepositional phrases. Ex:



One option is to cut the picture sequence and match the individual frames to written words.

The purpose of these activities is to practice language rituals useful for socializing and getting along with co-workers.

1. Chain Drill. Have the students sit in a circle. The teacher models and then begins the chain by speaking to one student. That student continues with the student to his/her right. The drill continues until all the students have spoken. Ex:

   First Student: Hi. I'm _____.
   Second Student: Hi. I'm _____. He's _____.
   Third Student: Hi. I'm _____. She's _____. He's _____.

2. Photo Introductions. Take photos of the students during the first week. Students practice introducing each other from the photographs. Ex:

   This is my friend.
   Her name is _____.
   She's from _____.

3. Recitation. Have students prepare a short "speech" that they each deliver to the rest of the class. Ex:

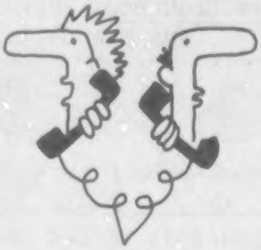
   I'm _____.
   (name)
   I'm from _____.
   (country)
   I'm _____.
   (nationality)
   I speak _____.
   (language)

4. Characters. Have students create an "identity" (name, age, occupation, residence). Have them introduce themselves to the rest of the class. Vary this by having students role play meetings between their characters.

5. Puppets. Prepare simple hand puppets. Use paper, cloth, papier mache, etc. Use the puppets to introduce or practice greetings or simple language exchanges. "Shy" students sometimes find it easier to talk through a puppet then to a person directly.

6. Telephone Invitation. Put up a partition separating two telephones or have students sit back-to-back. Students simulate a telephone call. One student makes an invitation and the other accepts or declines. One option is to use a set of picture cards to cue the type of invitation (e.g. dinner, a movie, drinks, watch T.V.). Ex:

   A. Can you go to a movie?
   B. I don't know, when?
   A. Friday.
   B. What time?
   A. 8:00.
   B. O.K. Thanks.
   A. See you Friday.



The purpose of these activities is to practice common workplace language exchanges.

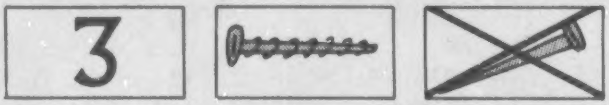
1. Role Play. Create a situation at home or on-the-job which involves a problem and a solution or result.

   Samples:

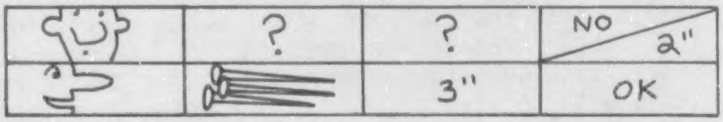
   - A woman looks unsuccessfully for a particular room number. Finally, she asks at an Information counter and finds it.
   - A man smokes near a NO SMOKING sign. People tell him to stop but he continues to smoke. Finally, someone shows him the sign. He reads it, understands it and puts out his cigarette.

   Role play the story (with the help of an interpreter aide or a few students). Afterwards, students role play the story on their own.

2. Constructalog. Students make their own dialogues from a list of words and expressions. Put a few key words (or pictures) on the blackboard. Ask the students to work in pairs to create their dialogues. Have students present their dialogues to the rest of the class.

3. Dialogue Grids. Tape a series of index cards illustrating lines of a dialogue on poster board to cue students as they practice the dialogue.

   As a follow-up, remove certain cards and have students add their own lines for the blank spaces.

4. Cummings Device. Write a short conversational exchange on the blackboard. Ex:

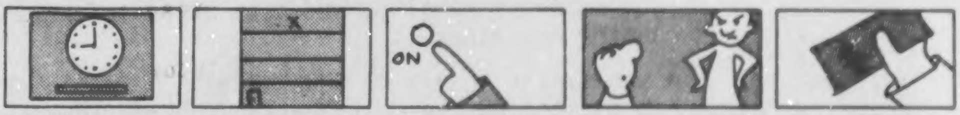
   Where is the _1_ . ?
   The _1_ . is in room _2_.
   What floor?
   _3_ floor.

   1. office
      supply room
   2. 15
      room
   3. 8th
      fifth

   Students choose which words to insert into the "holes" in the written exchange. With beginning students, read the exchanges for the students. For choices, only the sight words, pictures or symbols students are familiar with should be used.

The purpose of these activities is to practice language used to accomplish tasks and carry out job routines.

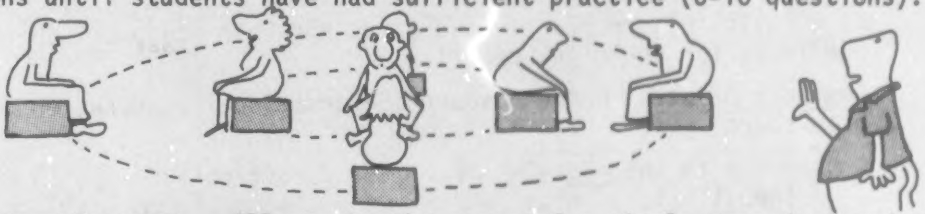
1. Spiel. Use visual cues on the blackboard to help students prepare and deliver short "talks" about their jobs.



2. Complimentary Actions. Have students pantomime different activities (sewing, writing, typing). The others guess the activity and then compliment the person, who thanks them. Vary this by having students make contrary statements (e.g. "You sew very badly.").

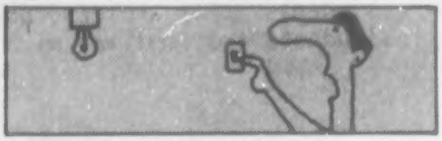
3. Interview. Assess your students' progress. Set up a mock interview with yourself as the interviewer. Ask students (one at a time) to describe skills they have learned in the program, name tools they have used, follow simple instructions and make small talk. Record the results on a checklist for use in planning future classes.

4. Double Circle. Move the chairs to form two circles--one inside the other. Students in the inner circle sit facing those in the outer circle. Present a question (e.g. "What do you do?", "When did you start?"). The pairs of students facing each other in the two circles take turns asking and answering the question. After the answers, the students in the outer circle move one chair to the right. Present another question. The new pairs then ask and answer both questions. Continue moving chairs and presenting questions until students have had sufficient practice (6-10 questions).



5. Picture Sequence. Illustrate the steps of a simple procedure and put them on cards. Give the cards to a group of 3 or 4 students. Have them put the cards in sequence. As a follow-up, ask the students questions about their sequence or ask the students to explain it.

6. Open-Ended Story. Present the following situations as stories:



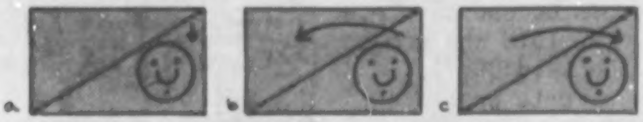
A fire in a trash can.
A machine won't stop.
A man cuts his finger badly.
The light won't turn on.

In each case, act out the situation and ask the students to provide possible solutions. Vary this by having the students act out the problem and the solutions.

Going Further   Language

The purpose of these activities is to give students additional language practice.

1. Picture Cues. Use pictures to cue a change in tense. Ex:



a) present
b) past
c) future

Hang the cards on the wall. Point to them when students need correction or instructions.

2. Sentence Chains. The first person says one word. The second person repeats what the first person says and adds a second word to the "sentence." This continues until each student has had a chance to add a word or until the sentence is complete. Ex:

I
I am
I am a
I am a student
I am a student and...

3. Humming Sentences. Review sentences that the students already know. Practice them orally and/or write them on the blackboard. Hum one of the sentences. Students try to identify what you are "saying." Ex: How are you? (the teacher hums) hum..hum..hum?

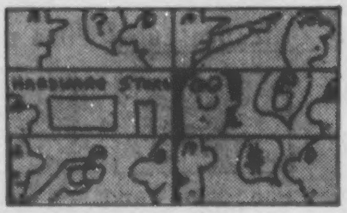
4. Find The Problem. Make a picture on large poster board showing the inside of a building. Keep it simple. An option is to draw a series of pictures on separate cards. Show each person doing something different. Have students find the problems. Vary this by putting the drawings on individual student worksheets. Students circle the drawings indicating problems. Afterwards, students state the problems they have identified.

5. True And False. Put two chairs in front of the class. Put the word TRUE on the first one and UNTRUE on the second. Divide the class into two groups. Each group goes to the back of the class. The teacher then makes a statement (e.g. "The paper is burning." or "The light is off."). The first student in each group listens to the statement, runs to the front of the class and tries to be the first to sit in the correct chair. Continue the game with two new students and a different statement. Points can be given to the group with the most correct.

6. Maybe. Tell one student to go outside and do an action. Ask the student to whisper to you what action he/she will be doing outside. The class tries to guess what is being done (e.g. "Maybe she is sanding.", "Maybe he is drilling."). When the action is guessed, another student goes outside. One option is to restrict the number of actions possible to a set of activity cue cards or a specific number of tools.

More language practice.

7. Picture Story. Present a 6, 8 or 10 frame picture story. Students read the story and repeat what the characters do and say (e.g. "He went in the store. He told the woman he wanted the locks. She said OK."). Picture stories can be used to practice reported speech.



8. Real English. For advanced classes, substitute natural or informal expressions for many of the language exchanges used in the previous games. The key to "real English" is juncture--the spaces between words. At times, syllables are shortened or disappear. At other times, juncture is misplaced. Your students understand, "Do you want to go?" but do they know what to say if you ask, "Wongo?" Note: with any of the "real English" expressions listed here, emphasize listening comprehension not oral language production.

1	Howddja _____?	How did you _____?
2	Gotcha	Got you
3	Gotta match?	Have you got a match?
4	Wha'dja _____?	What did you _____?
5	Whatcha _____?	What do you _____?
6	Gonna	Going to
7	Havta	Have to
8	Omina...	I'm going to...
9	Aowno.	I don't know.
10	Canya _____?	Can you _____?
11	A napple	An apple
12	Wanna	Want to
13	Kinda	Kind of
14	Sko.	Let's go.
15	G'outta here.	Get out of here.
16	Watcha wanna do?	What do you want to do?
17	Gonna getcha check?	Are you going to get your check?
18	Wha'dya mean?	What do you mean?
19	Wanna getta beer?	Do you want to get a beer?
20	Howzitgoin'?	How is it going?

Literacy Activities

Suggestions for literacy activities appear periodically in the curriculum as well as in the Techniques section of Shifting Gears, Book 1. In addition, Shifting Gears, Book 1 contains Numbers Lessons. On the following pages several literacy games, activities and techniques are listed and described. They serve as an additional resource to teachers when planning the literacy focus of a lesson.

For the purpose of organization, the literacy section is divided into the following categories:

1. Pre-Literacy
2. The Alphabet
3. Numbers
4. Alphanumeric Codes
5. Money/Prices
6. Time
7. Measurements
8. Workplace Signs/Sight Words

Activities appearing in one category, however, might be equally appropriate in other categories. For example, "Flip the Switch" appears under Alphanumeric Codes. It could also be listed under Workplace Signs/Sight Words. Teachers are encouraged to adapt, revise and explore further uses of the activities which follow. No suggestion is made about when to use them. Many are appropriate for presentation, practice, review or assessment.

Literacy

Pre-Literacy

1. Air Writing
2. Finger Painting
3. Sand Writing
4. Clay
5. Left To Right
6. Hold That Pencil
7. Finger Tracing
8. Rewrite
9. Copying
10. Discrimination

The Alphabet

1. Letter Names
2. Missing Letters
3. Letter Cards
4. Goggles
5. Mirror Image
6. Circling
7. Matching
8. Concentration
9. Letter Sequencing
10. Grab Bag

Numbers

1. Buzz
2. Telephone Numbers
3. Tic Tac Toe
4. Number Cube
5. Snakes and Ladders
6. Concentration
7. Cross Out
8. Factory
9. Same or Different
10. Connect the Numbers
11. War
12. Dice
13. Thermometer
14. Math Match
15. Chalk Circles
16. Overlapping Cards
17. Question and Answer
18. Spinner Games

Alphanumeric Codes

1. Flip the Switch
2. Put It There
3. Bingo 1
4. Bingo 2
5. Battleship
6. Find the Code
7. Break the Code
8. Code Dyad
9. Coded Nails

Money/Prices

1. Prices
2. Spinner
3. Vending Machine
4. Check the Box
5. Cubes
6. Real Money
7. Equal It
8. Shopping
9. The Price is Right
10. How Much?

Time

1. Spinner
2. Concentration
3. Time Card
4. Numbers
5. Dictation
6. Date Cards
7. Clocks
8. Time Dominoes

Measurements

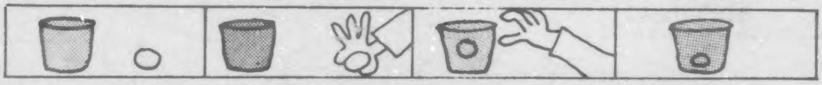
1. Concentration
2. Pies
3. Line Ups
4. Graphs
5. Same or Different
6. Pack a Box
7. Pancakes
8. That's Me!
9. Weight Match
10. My Classroom
11. Measurement Chart

Workplace Signs/Sight Words

1. Snap
2. Picture Story
3. Crossword
4. What's Missing?
5. Missing Letters
6. Dialogue Grid
7. Schedule Matching
8. Matching
9. Calendar Roulette
10. Spell It
11. Concentration
12. Role Play
13. Hangman

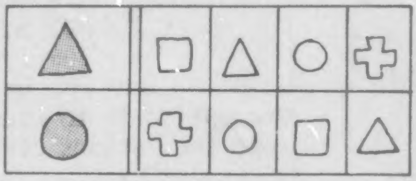
The purpose of these techniques is to practice skills a student should have before beginning reading and writing. The focus is on manipulation and coordination of the fingers, eye-hand coordination, visual discrimination and building confidence in completing simple tasks.

1. Air Writing. "Write" the letter in the air using the index finger. Students observe and "write" the letter. One option is to begin with simple shapes (e.g. a snake, a square) before beginning the letters.
2. Finger Painting. Provide students with paper (larger than 8½" x 11") and paint. Allow the students to make their own shapes, patterns and designs on the paper. Vary this by asking the students to copy designs you make. Note: Remember to provide clean-up materials.
3. Sand Writing. Put students in groups of three. Give each a shallow box filled with sand. Allow the students to make their own designs in the sand or give students a model to copy.
4. Clay. Give clay to each student and allow them to mold the clay to make their own creations or give students a model to copy.
5. Left To Right. Provide exercise sheets which direct students to "read" or draw left to right (e.g. a maze, a picture sequence). Ex:



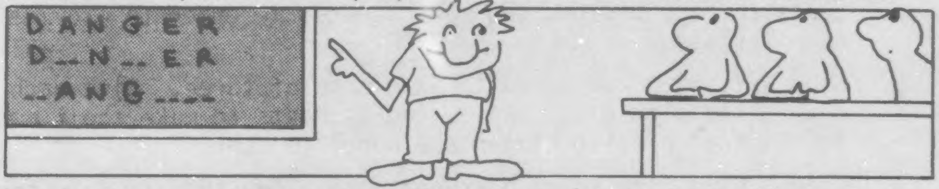
6. Hold That Pencil. If students have difficulty holding a pen or pencil correctly, begin by allowing them to use a felt pen or magic marker. The thick cylinder may be easier for some students to hold and use in the beginning.
7. Finger Tracing. Give students alphabet or pattern cards. Allow them to trace over the shapes on the cards with their index fingers. Provide students with a model of the shape to be traced.
8. Rewrite. Provide students with worksheets that "suggest" what a completed letter, number or shape would like. Ex:

9. Copying. Give students worksheets with letters, numbers or shapes. Students look at each and copy onto the worksheet. Vary this by requiring the students to copy something from the blackboard. Note: These are two separate skills. Both require practice.
10. Discrimination. Give students worksheets which require them to locate or identify similar shapes and patterns. Students can identify the same shape in each row by circling it, checking it or putting a marker on it. Another option is to put shapes and patterns on separate cards and ask students to sort them into groups.

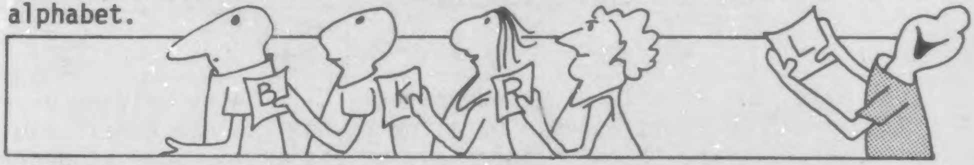


The purpose of these activities is to practice reading and writing the letters of the alphabet.

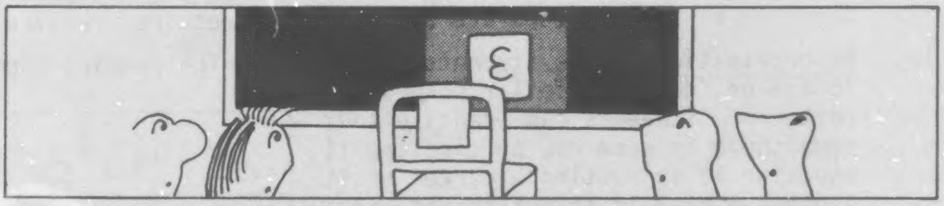
1. Letter Names. Prepare a set of alphabet cards. Put students in groups of 4 and give one set of cards to each. Hold up the letter "B", for example, but say "D." Students work together to find the letter named (e.g. D) and hold it up. This can be played as a contest between teams.
2. Missing Letters. Write a word the class has been exposed to before on the blackboard. Write the word several more times erasing different letters. Students then write in the missing letters. One option is to prepare individual student worksheets.



3. Letter Cards. Tape cards with letters (A, B, C, D, E) to students' backs. They must group themselves together according to letter. To do this, they have to read the cards and ask each other questions. Do the same exercise with other letters in the alphabet.



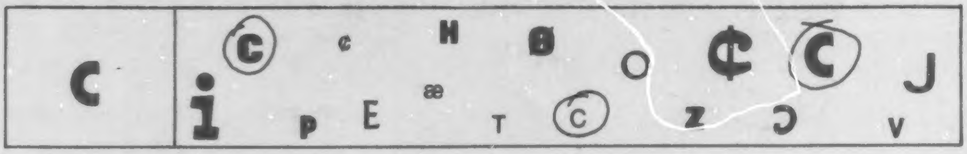
4. Goggles. One student puts on a pair of goggles with darkened lenses. The other students sit in a semi-circle. They give the student a wooden or cardboard letter to hold and touch. The student tries to guess the letter by only using the sense of touch. The game continues with other students wearing the goggles and guessing letters.
5. Mirror Image. Put a mirror on the blackboard. Place a chair 2 feet in front of the mirror. The students sit in a semi-circle behind the chair. Write letters of the alphabet with felt pen on index cards. Tape one index card on the chair facing the mirror so that the students can only see its mirror image. Students try and write the letter correctly.



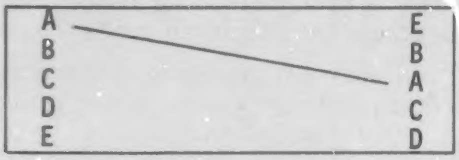
One option is to have the students form two teams and compete to read the letters correctly.

More activities reading and writing letters of the alphabet.

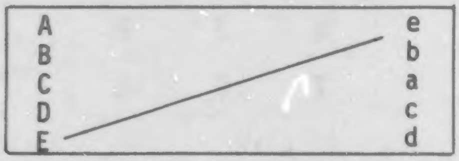
6. Circling. Give students a worksheet with letters written down the left side and rows of letters opposite. Students look at a letter and then circle the same letter in the row. Ex:



7. Matching. Students match letters by drawing lines on a worksheet.

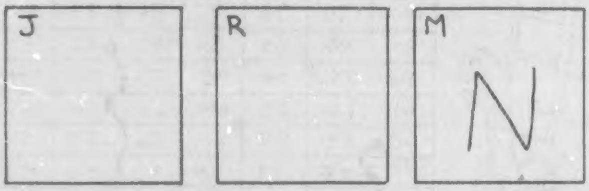


Another option is to match capitals to small letters.



8. Concentration. Vary the activity above by putting the capital and small letters on cards. Students place the cards face down and play the game in turns trying to find letters that match.

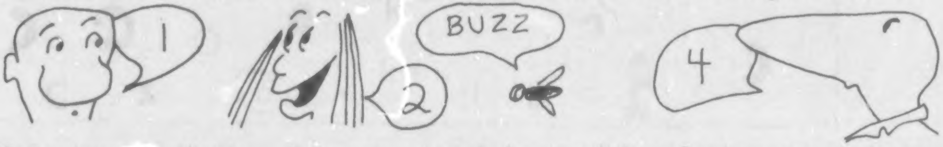
9. Letter Sequencing. Make a deck of cards with letters of the alphabet written in the upper lefthand corner. Shuffle the cards so they are out of sequence. Give the deck to a group of students. They must look at the letter in the upper lefthand corner (e.g. M) and write the letter that follows it in the alphabet (e.g. N). When the task has been completed, the cards can be sequenced.



10. Grab Bag. Make 4 complete sets of alphabet cards. Mix the cards together. Divide randomly into groups of 26 and put into 4 paper bags. Give a bag to each group. Students sequence whatever cards they have, decide which letters have duplicates and which letters are missing. The groups then initiate trades with each other (e.g. "Can I have a G?", "Do you want an X?").

The purpose of these activities is to practice reading and writing numbers.

1. Buzz. Students count from 1-100. The first says 1. The second says 2. The third says "Buzz." The number three (for example) or any number with three in it cannot be said (23, 13, 93). Whenever a mistake is made, the students must start again at 1.



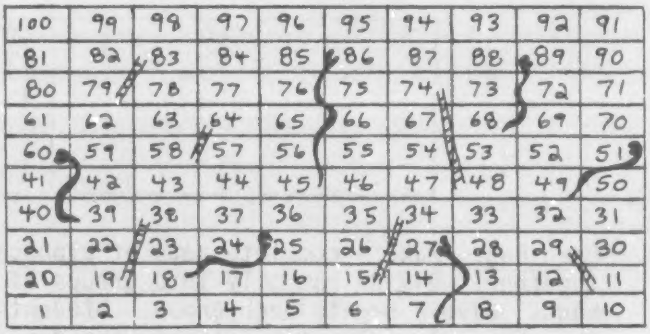
2. Telephone Numbers. Prepare a worksheet with telephone numbers preceded by area codes. Each telephone number is incomplete. Ex: 6_4-32_-88_9. Dictate the complete number. Students write it.

3. Tic Tac Toe. Each pair of students has one card and 5 markers. To put a marker down, students must say a number on the card aloud. Students try to get three markers in a row.

7	5	2
4	3	9
1	8	6

4. Number Cube. Make a cube with six sides, each showing a number (10, 20, 30, 40, 50, 60). Students throw the cube, look at the number facing up and say it. Vary this by making it a contest.

5. Snakes and Ladders. Divide students into groups of four. Give each group a Snakes and Ladders board, a pair of dice and tokens for each player. The board should have all the numbers from 1-100. Players throw the dice in turn and move along the lines saying each number aloud. When landing in a square with a ladder, the student goes up it. When landing in a square with a snake's head, the student goes back to square 1. The winner reaches 100 first.

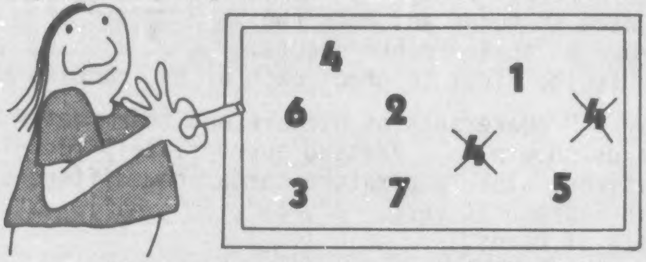


100	99	98	97	96	95	94	93	92	91
81	82	83	84	85	86	87	88	89	90
80	79	78	77	76	75	74	73	72	71
61	62	63	64	65	66	67	68	69	70
60	59	58	57	56	55	54	53	52	51
41	42	43	44	45	46	47	48	49	50
40	39	38	37	36	35	34	33	32	31
21	22	23	24	25	26	27	28	29	30
20	19	18	17	16	15	14	13	12	11
1	2	3	4	5	6	7	8	9	10

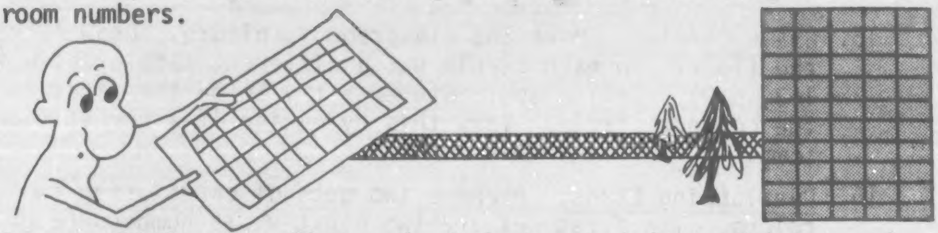
6. Concentration. Have students make matching pairs of telephone numbers (e.g. 621-1934, 621-1934) and play the game.

More activities reading and writing numbers.

7. Cross Out. Write down a set of numbers or letters on the blackboard. Tell students to cross out all the fours (for example). One option is to give out individual student worksheets.



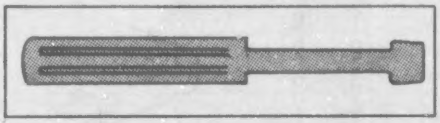
8. Factory. Give each student a worksheet showing a 10 story factory building with several rooms on each floor unnumbered. Students complete the worksheet by writing in the missing floor and room numbers.

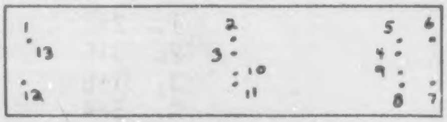


9. Same or Different. Give each student a worksheet with rows of numbers. Students look at the numbers on the left and circle the same number in the row.

39417	93417	39417	71934	87645	57684
681	168	861	116	681	611

10. Connect the Numbers. Make a simple line drawing of something familiar to the students (e.g. a hammer, a box). Put numbers at different points along the lines. Using a separate piece of paper, record the position of the numbers but not the lines. Make copies. Give these to the students. When they connect the numbers with lines--the picture is revealed.

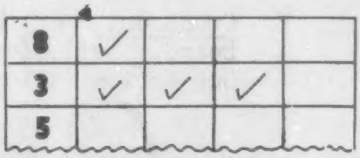




11. War. Put students in groups of three. Each has a deck of cards. One student is the dealer. The dealer gives each player--including himself--a card facing up. The person with the biggest number showing takes all. The dealer then gives out four more cards. At the end of the game, count the cards or add the totals to determine the count.

More activities reading and writing numbers.

12. Dice. Students play in groups of three. Each group has a pair of dice. Each student has a record sheet. Students throw the dice in turns and note the number thrown on their record sheets. The winner is the first to check each of the numbers at least once.



8	✓			
3	✓	✓	✓	
5				

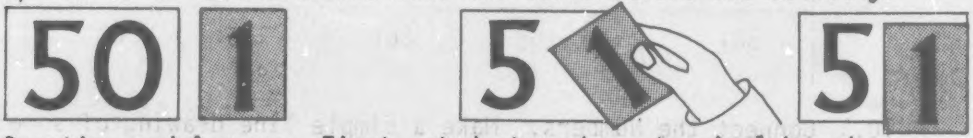
13. Thermometer. Prepare sets of picture and thermometer cards. The picture cards show people dressed appropriately for different weather conditions. The temperature cards show different temperature readings in Fahrenheit (e.g. 14°, 35°, 56°, 81°). Students match the two sets of cards.

14. Math Match. Match cards with mathematical problems to sums.

2+1 **3**

15. Chalk Circles. Move the classroom furniture. Draw 12" circles on the floor. In each circle put a different math problem (e.g. 2+3, 1+3, 6+0). Call a sum. Students try to be the first to stand in the correct circle. Vary this by making it a competition between teams.

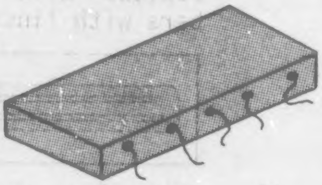
16. Overlapping Cards. Prepare two sets of cards using two different colors. The first set are two digit whole numbers (e.g. 10, 20, 30, 40) and the second set are one digit numbers (1-9). Place all the cards face up on the table in front of a group of students. Call or show a two digit number (e.g. 51). Students "make" 51 by overlapping the 50 and 1 card. Vary this by preparing three sets of different colored cards to practice three digit numbers. One option is to have students make the cards before the activity.



17. Question and Answer. First, students make a terminal board. Second, they attach questions to one side and answers to the other. Finally, they ask other students to use their terminal board to try and match questions to answers.

Ex:

Questions	Answers
1. 2+2	1. 8
2. 3+5	2. 9
3. 1+6	3. 6
4. 5+4	4. 7
5. 3+3	5. 4

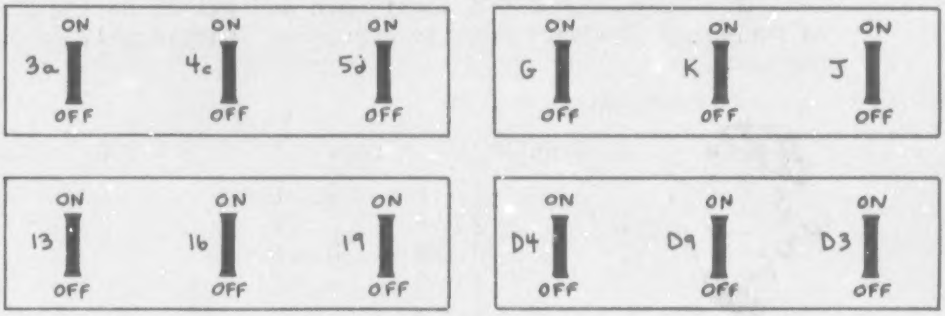


18. Spinner Games. Remember that 34 Numbers Lessons appear in Shifting Gears, Book I, pages 179-214. The games introduce students to basic skills in measuring, calculating and counting.

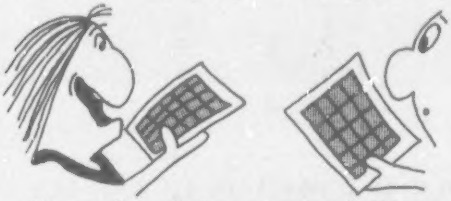
Alphanumeric Codes

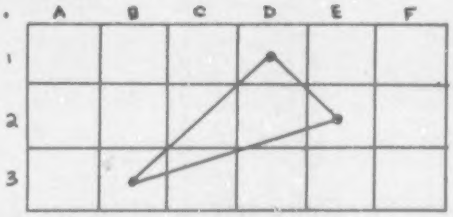
The purpose of these activities is to practice reading and writing letter-number codes.

1. Flip the Switch. Make a set of task cards out of cardboard. Each card should have a number of "switches" attached with tape. Write ON above and OFF below each switch. Identify each switch with a number and/or letter (e.g. 3a, 6f, 8e). Students respond to directions given by the teacher (e.g. "Turn off 3a.", "Turn on 6f."). Vary this by having the students work in pairs. One student gives the directive and the other student flips the switch.



2. Put it There. Have each student label a separate piece of grid paper with letters and numbers. Call out locations (e.g. B3). Students put a dot in the center of that square. Call out other locations. Finally, have the students draw lines to connect the dots. They then give the names of the geometrical shapes they have drawn (e.g. triangle, square).





3. Bingo 1. Make a set of Bingo cards. Call out letters and numbers (e.g. B3, 18, N4). If students find a number called on their cards they cover it with a marker. The winner covers all the numbers in one row (horizontal, vertical or diagonal).

4. Bingo 2. Play the game but use cards with letters across the top and numbers in the squares below.

5. Battleship. Students play in pairs. Each has the same size graph paper numbered across the top (1-10) and lettered down the left side (A-J). Each player can "hide" 10 ships anywhere on the grid. The players should not show their grids to each other. Each player tries to locate the ships by calling out the squares (e.g. 5d, 9H, etc.). The winner finds all the hidden ships.

More activities to practice number-letter codes.

6. Find the Code. Prepare two sets of cards--15 number cards and 15 alphabet cards. Students sit in two groups around tables. Spread the cards face down on the tables. Call out a code (e.g. B3, J9). Students find the code by taking turns turning over a pair of cards. As an option, set a time limit and make this a competition between teams.

7. Break the Code. Make a simple code by assigning numbers to letters in a word. Choose a sight word and put it on the blackboard in numbers. Students work in groups or individually to identify the word.

Sample:

DANGER

Code	
1. E	6. G
2. P	7. R
3. N	8. D
4. A	9. T
5. W	

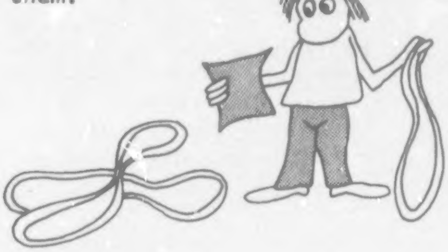
8 4 3 6 1 7

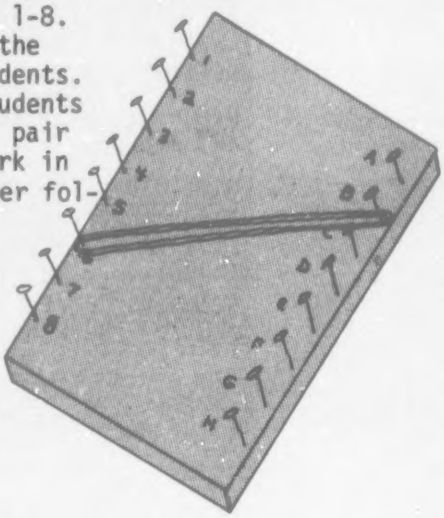
8. Code Dyad. Do the activity above as a dyad. Students work in pairs. Each has one half the code. They must ask questions of their partners to find the missing information before they can break the code.

1. E	6.
2.	7. R
3. N	8.
4.	9. T
5. W	

1.	6. G
2. P	7.
3.	8. D
4. A	9
5.	

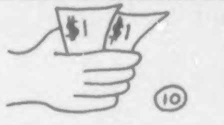
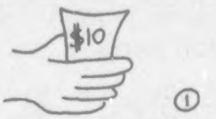
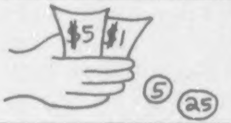
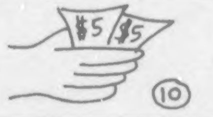
9. Coded Nails. Prepare a board with 8 nails in a line down the left side and 8 nails down the right side. Number the nails on the left 1-8. Letter the nails on the right A-H. Give the board and 8 rubberbands to a group of students. Ask them to connect 8 pairs of nails. Students then record the number and letter in each pair (e.g. 4H, 3B). As an option, students work in pairs. One gives the directions--the other follows them.





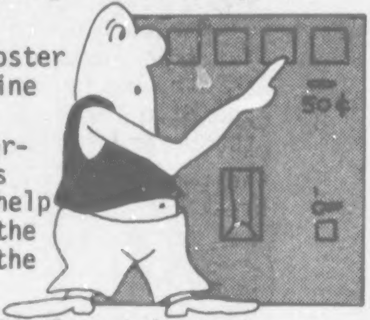
The purpose of these activities is to become familiar with U.S. currency and reading and writing of prices.

1. Prices. Give each student a worksheet. Students count the money seen and write the amount beside it. Ex:

	**$2.10**		**$**
	**$**		**$**

2. Spinner. Prepare a spinner card with various amounts of money under a dollar. Bring in U.S. coins or pictures or them. Students spin and must take the amount of money indicated by the arrow.

3. Vending Machine. On a large piece of poster board, draw the front of a vending machine with the coin slots and controls. Have the students mime the procedures for operting the machine (when the machine works it dispenses a cup). Students ask for help when the machine does not work. Check the amount of money that students put into the machine.



4. Check the Box. Give the students individual worksheets to complete. Students look at the amount and price in the left column and check the corresponding amount in the row on the right.

3/99¢	**3** ✓	**1**	**2**
	96¢	**69¢**	**99¢** ✓
2/59¢	**4**	**2**	**5**
	59¢	**95¢**	**$5.90**

5. Cubes. Put pictures of U.S. currency on the six sides of a cube. Have the students form two groups. Members of each group throw the cube in turn and identify the amount shown. One option is to follow-up the identification by asking the student to take the same amount of money from a box of bills and coins on the table.

More activities to become familiar with U.S. currency.

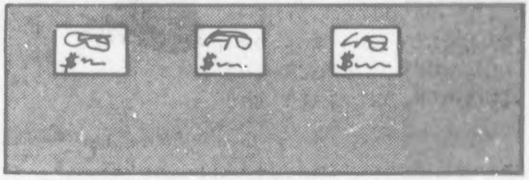
6. Real Money. "Funny money" or "play money" is fine for some activities but "real money" adds an element of seriousness to even the simplest game. Give groups of students money and an amount card (e.g. $1, $1.50, $2). Ask them to make as many different combinations of coins to equal the amount as possible.

   Ex: 25¢ + 25¢ + 25¢ + 25¢ = $1

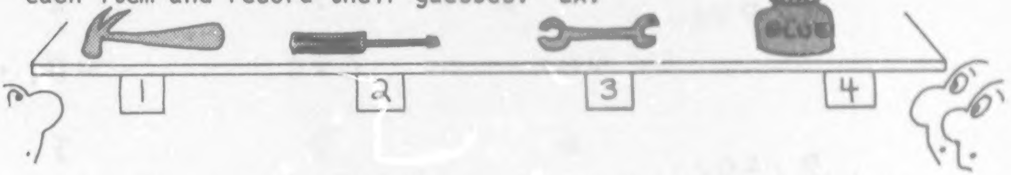
   50¢ + 50¢ = $1

7. Equal It. Prepare number cards with different amounts of money (e.g. $1.50, .25, 45¢). Give each student a card. Call out an amount of money (e.g. $4.50). Students decide who has the cards which total that amount. Ask them to stand with their cards. Another option is to put the cards on the blackboard so all can see.

8. Shopping. Prepare pictures of different items on cards. Add a price below each picture and put the cards on the blackboard. Give each student an amount of money. Students look at the pictures and decide what they can buy with their money. Expand on this by asking students to determine the exact totals they spend and have left. Ask advanced students to consider sales tax in their computations.

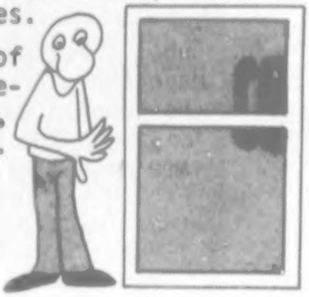


9. The Price is Right. Put various items in front of the class. Write their prices on index cards and place them face down beside each item. In groups, students decide the correct price of each item and record their guesses. Ex:



   Afterwards, show the real price and have the students determine which groups made the best guesses. Note: Realistic prices can be found in American newspapers and magazines.

10. How Much? Give students a set of pictures of common worksite items which require money before they can be used (e.g. a pay telephone, vending machines for cigarettes and drinks). Students look at the pictures and write the amount of money needed for each on a record sheet.

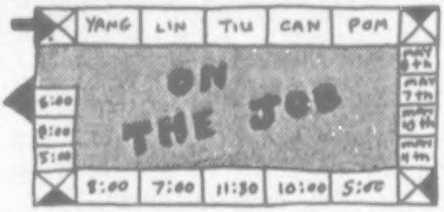


The purpose of these activities is to practice reading and writing digital and clock face times.

1. Spinner. Make a spinner card that illustrates a clock face with numbers. Put another arrow on the card for the hands of the clock. Each student spins the hands and reads the time.

2. Concentration. Play the game with two sets of cards that match clock faces to other clock faces or to written times.

3. Time Card. Prepare game boards and time card worksheets for each group of students. Use the names of your own students on the game board.



NAME ____________

DATE ____________

TIME IN ____________

TIME OUT ____________

Give each group dice and markers. Taking turns, students throw the dice and move their markers along each line filling in their time card as they go. Collect the time cards and put them in a box. Ask students to find the time card with their names--not the one they filled out. As a follow-up, ask questions (e.g. "When did you come to work?", "When did you leave?").

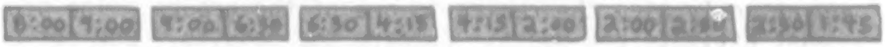
4. Numbers. Review the numbers from 1-59 as you move the minute hand on the clock. (e.g. "It's one-oh-one."). Write the times on the blackboard (e.g. 1:01).

5. Dictation. Give the students cardboard clocks. Write a time on the blackboard and have them move the hand to that time. Vary this by saying a time and having the students write it on paper or on the blackboard.

6. Date Cards. Prepare four sets. On one set put months and on the other put days of the week, numbers 1-31 and various years (e.g. 1979. 1940). Students turn over a card from each set and give the date.

7. Clocks. Distribute cardboard clocks with moveable hands to students and state a time (e.g. 9:30). Students move the hands to make the correct time. Vary this by having the students work in pairs. One student moves the hands and the other gives the time. An option is to use Cuisenaire rods to form a clock and its hands.

8. Time Dominoes. Make a set of dominoes with written times. Put the students in groups of four and give each group a set. Students match the dominoes to form chains.



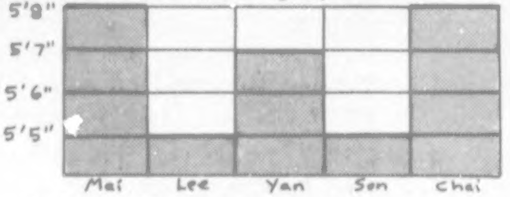
The purpose of these activities is to become familiar with U.S. units of measurement.

1. Concentration. Play the game with sets of 15 cards which match the names of amounts and their abbreviations.

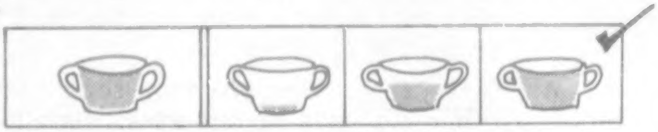
2. Pies. Make a circle. Divide the circle into "pie slices." Use scissors to cut it into pieces. Add one additional piece. Put all in an envelope and give to a group of students. Ask the students to make one complete "pie" and find the extra piece.

3. Line Ups. Have the students line up according to height, weight and age.

4. Graphs. Students measure heights, weights and ages and record the information on bar graphs. As a follow-up, students talk about the information they have gathered (e.g. "Lin is the tallest.", "Mai is the oldest."). As an option, have students put the measurements on cards, sort them and then make their graphs.



5. Same or Different. Prepare a worksheet illustrating liquid or solid measurements. Have students look at the measurement on the left and check or circle the illustration on the row that equals the same amount.

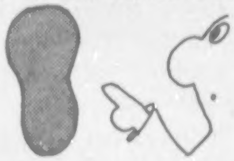


6. Pack a Box. Bring in a variety of items to class. Have students work in groups to decide what they can put in a box to mail back to friends in Thailand from the U.S. The box cannot contain more than 22 lbs so they must estimate a weight as close to 22 lbs as possible. After the box is packed--weigh it to see how much it actually weighs. Groups record the weights and decide which is closest to 22 lbs. As an option, do this as a competition between teams.

7. Pancakes. Divide the class into two groups. Have them make pancakes. Give both groups all the ingredients necessary. However, only give the recipe to one of the groups. The other group must estimate and guess. Compare the results. One option is to make drinks or a cake instead of pancakes.

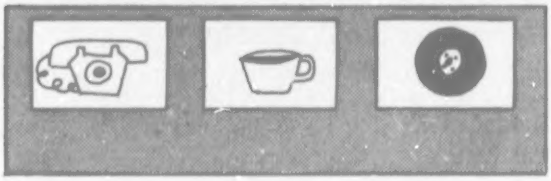
More activities to become familiar with U.S. units of measurement.

8. That's Me! Take a few minutes (before class, during break) to measure everyone's right foot. Put all the measurements on the blackboard but without writing any names. Have the students measure their own feet. Ask them to measure in inches. Finally, ask the students to find the measurements on the blackboard that match their own. They then write their names beside the correct measurements.



Vary the activity by measuring other parts of the body or have the students identify their heights and weights.

9. Weight Match. Tape pictures of common household or worksite items on the blackboard (e.g. a telephone, a coffee cup, a car tire). Write the actual weights of each on index cards. Give the cards to the students and have them match weights and items. Afterwards, allow students to weigh the items to prove their guesses.



10. My Classroom. Students form groups of 2 or 3. Each group has a simple floor plan of the classroom and a tape measure. Students in each group work together to measure and record the dimensions of the room. Afterwards, the groups share their findings. Disagreements should be settled by remeasuring.

11. Measurement Chart. For advanced classes, put information about students on a chart. Have the students ask and answer questions using the chart as a guide.

Ex:

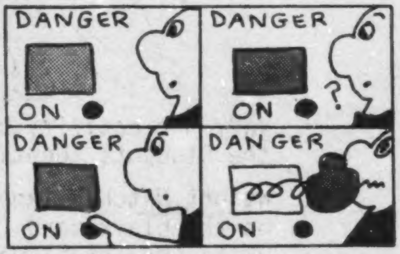
Name	Age	Height	Weight
Liu	50	5' 8"	130 lbs
Tan	14	4' 9"	119 lbs

Who is the tallest?
How much does Tan weigh?
Is Tan or Liu older?

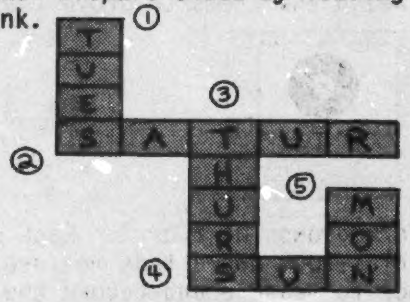
The purpose of these activities is to practice reading sight words and common workplace signs.

1. Snap. Use index cards to make a set of 60 cards. 30 have the names (or pictures) of a finished product. The other 30 have names (or pictures) of tools. Deal a number of cards to each player. One by one the players put down a card facing up in a single pile. When a student sees a card that matches one in his/her hand, he/she puts it down and calls out "SNAP" before anyone else claims it. The winner makes the most matches.

2. Picture Story. Make a picture story using the sight words students have already been taught. Students can take turns telling the story. As an option, ask students to circle words in the story as you call them. Another option is to sequence the frames of the story.

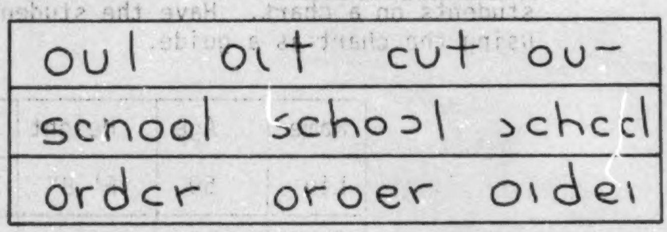


3. Crossword. Prepare a crossword puzzle to review the days of the week. Prepare clues by leaving some words or parts of words blank.



1. Monday, _?_ day, Wednesday
2. Friday, _?_ day, Sunday
3. Wednesday, _?_ day, Friday
4. Saturday, _?_ day, Monday
5. Sunday, _?_ day, Tuesday

4. What's Missing? Write rows of words on a worksheet. Leave out parts of some letters. Give the worksheets to the students and have them fill in the missing parts. Ex:



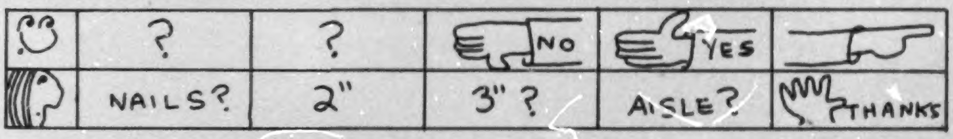
oul	oıt	cut	ou-
scnool	schoɔl	ɔchcl	
ordcr	oroer	oıdeı	

5. Missing Letters. To review signs, write the words on the blackboard but leave out letters that students must then write in to make the word complete.

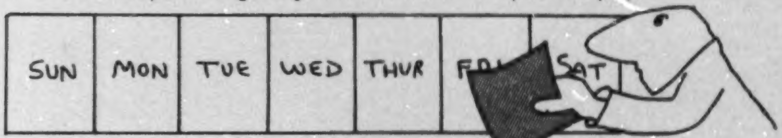
D	A	N		E	R

More practice reading sight words and workplace signs.

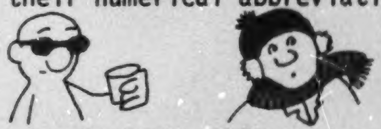
6. Dialogue Grid. Put pictures of lines of dialogue on index cards. Tape the index cards to a piece of poster board. Students can refer to the cards as they practice the dialogue. As a follow-up, remove certain cards and have the students work in pairs to prepare dialogues with new lines for the empty spaces.

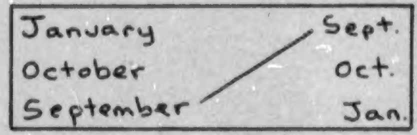


7. Schedule Matching. Give each student a set of seven paper slips and a paper with seven squares, each labelled with the days of the week. Make statements about a work schedule. Students cover the corresponding days with the slips of paper.



8. Matching. Students draw lines to connect each month of the year with its abbreviation. Vary this by matching days of the week and their numerical abbreviations.





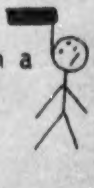
9. Calendar Roulette. On poster board, put calendars of all the months of the year. Put the poster board on the table or on the floor. Have students toss a coin onto the board. They then read the date the coin lands on.

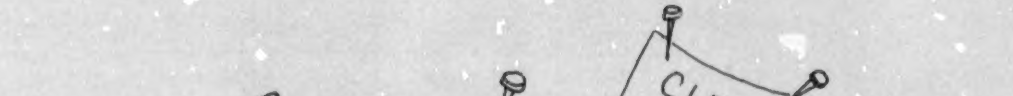
10. Spell It. Prepare cards with pictures of tools and their written names. Give a set of alphabet cards to each student. Show the tool cards one at a time. Students try and "spell" each word using their alphabet cards. With more advanced students, show a tool card for a brief time (30 seconds) and then remove it. Students try and remember the spelling of the word and then spell it using their alphabet cards.

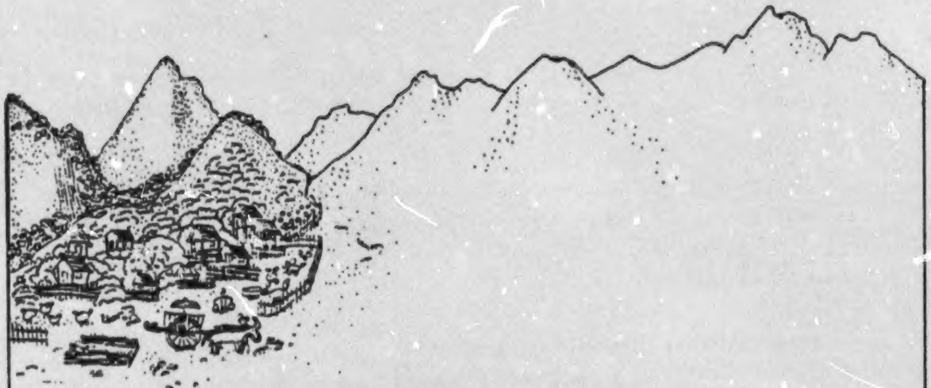
11. Concentration. Play the game with sight words (e.g. NO SMOKING, HIGH VOLTAGE, POISON) and several pictures or symbols of each.

12. Role Play. Put up workplace signs at various points in the classroom. Ask the students to observe as you role play a factory worker. Intentionally make some mistakes (e.g. smoking in a NO SMOKING area, pushing a button that says DON'T PUSH). Afterwards, ask the students if they observed you do anything that was unsafe or incorrect.

13. Hangman. Put dashes on the blackboard representing letters in a word. Students take turns guessing the letters of the word. Correct letters are written on the dashes. Incorrect answers help hang a man.




LUNCH
12:00 -12:30
CLEAN UP YOUR MESS
MUST THINK HE'S BETTER THAN WE ARE.



Appendix

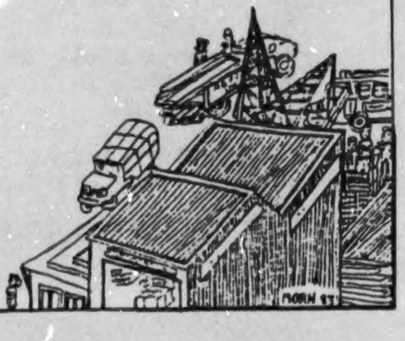
1 GETTING THE MOST OUT OF YOUR BUDGET

- General Hints
- Buying Tools
- Buying Materials
- Starting Small
- Getting Bigger

2 TOOLS AND MATERIALS MASTER LISTS

- How to Use the Master Lists
- Activity Lessons List
  - Long Life Tools and Materials
  - Short Life Materials
  - Preparations
  - Handouts

3 HANDOUT SAMPLES



Appendix: 1

GETTING THE MOST OUT OF YOUR BUDGET: GENERAL HINTS

There are many ways that you can get tools, materials or helpful information, which can save you time and money. The following are some suggestions:

1. Under state laws, you may qualify for tax-free status. You can then purchase tools and materials without paying sales tax.
2. Most hardware stores, lumber yards, electrical supply stores, and art materials supply stores give credit and discounts. Your school may already have credit accounts with local stores. Usually it is relatively easy to get a discount if you tell the store manager that you are buying for educational purposes, that you are buying in bulk and that you will continue to buy from that store. Do research first to be sure a store has what you will need (for example, the larger building-supply hardware stores offer more products at better prices than small hardware stores). Find a few reliable places that can supply most of your needs.
3. If you are using school facilities, make friends with custodians and shop teachers. They may be able to help you with technical information and tell you where to get tools and materials. Custodians often have storage rooms full of used materials (such as lumber, hardware, electrical parts, etc.) and they may loan or donate items to your class.
4. Workers in the various stores where you buy your tools and materials usually have a lot of information about their particular technology and stock. If you ask, they are usually eager to assist.
5. Book stores and public libraries usually have hobby and craft sections. There are technical manuals (both on how things work and how to master skills), project-design books and magazines. From these books, you can get technical information and ideas for additional projects. You can show students these books to help them generate ideas of their own or to broaden their understanding of the relevance and logical extensions of the basic skills they are learning.
6. To buy tools and materials cheaply, go to garage sales, church rummage sales and junk stores.
7. If your money is limited, it may be worthwhile to ask for donations.

BUYING TOOLS

Hand Tools:

Your budget and the number of times you plan to teach the lessons will affect the quantity and quality of tools you buy. In any case, it is a mistake to buy the cheapest tools available. They are made of inferior materials; they wear out quickly; they are not well calibrated, and they do not perform well the tasks for which they are designed. Beware of special "bargain" sales. Any tool that stops working after a short time is not a bargain. It is better to buy medium-quality brand name products from a store you trust. Make sure students take proper care of tools to make them last longer. For example, don't put wood saws on metal or concrete, don't use screwdrivers as chisels, don't let tape measures rewind quickly into their cases.

Power Tools:

In the U.S. power tools are reasonably prices, especially when on sale. As with hand tools, the cheapest power tools wear out fast, lack power, and are not made well enough to do a good job. This is particularly true of saber saws. The cheapest ones do not have a well-made reciprocating mechanism and quickly wear out of alignment. They also have a hard time cutting even the softer woods. It is a good idea to buy power tools of good quality. This makes the learning tasks easier for students.

Eye Protection:

To protect your eyes, it is a good idea to wear safety glasses for any task where flying particles are generated by tools. The comfortable machinist's type safety glasses with side protectors are suitable for most tasks. For the lessons in this handbook, students who already wear glasses are sufficiently protected. Buy a good pair for every 2 students who don't already wear glasses. If safety glasses are uncomfortable, or have lenses that scratch easily, students may not wear them. If you cannot see through glasses because of scratches or dirt, they are not safe. Goggles or a full face shield should be used for more dangerous work (for example, lathe operation, drilling masonry, chiseling concrete). They can be worn over ordinary glasses.

Drill Bits:

Many different sizes of bits are needed for the lessons, and it is important for student to learn how to select the proper size bit for a task. Buy sets that have a durable storage case (a drill bit index) to prevent loss and so that students can easily see the different sizes.

Drill Bits (cont'd):

It is usually cheaper to buy sets of drill bits instead of the same number of individual bits. Be sure to buy extra replacement bits for the most commonly used sizes. For these lessons a set of 8 to 10 bits from sizes 1/16" to 1/4" is sufficient.

Soldering Irons:

Soldering irons come in many different styles. We recommend using the traditional style soldering iron or "pencil" type soldering iron, not "soldering guns," which are more expensive. For the kind of work done in these lessons, a small iron that can be easily held and maneuvered will be sufficient. Be sure to buy soldering irons that have replaceable tips. Buy extra tips to change when old tips wear out.

Straight Edges:

Straight edges and/or rulers are used frequently in the lessons. If students use straight edges as guides for cutting with razor knives, buy metal ones since a razor knife will cut plastic or wooden straight edges. Before you buy, decide if you need separate straight edges and rulers or just one tool for many tasks.

Wire Cutters and Long-Nosed Pliers:

When you buy these tools, be sure that the jaws (that cut wire or hold small objects) line up and come together properly. Before you buy, carefully inspect the jaws on a number of different tools and pick the ones that work best. This is very important if you buy reasonably priced tools. To make the tools last longer, don't use them on tasks for which they were not designed; for example, don't cut coat hangers with wire cutters designed for only cutting electrical wire.

BUYING MATERIALS

Buy materials in logical quantities (e.g. wire by the spool, batteries by boxes of 24, and screws by the pound). You can usually save 10-30%. (When shopping, compare the cost of items purchased in bulk with the cost of the same number of items if purchased individually.) It is better to buy extra materials or slightly more than you think you will need. Otherwise, you may have to return to the store for a few more items at a higher price. Whenever possible, buy the total quantity of an item needed for your chosen curriculum at one time. (See the Master Tools and Materials Lists for suggestions on how much to buy.)

Appendix: 1

STARTING SMALL

You may have to start your program with a small number of lessons because of limitations of time or money, or because you suddenly have many students to teach. It's important that you do not lose important educational objectives by cutting out certain lessons that provide foundations for later lessons. In *Shifting Gears*, Book 1, the suggested lists of lessons for "Starting Small" are in Appendix 4: "Getting the Most out of your Budget." Here are continuations of these lists for Book 2 lessons. The lessons done the first time require a minimum of cost, effort of preparation and use of storage space.

The First Time

Drawings, Patterns and Electricity

25. Timing a Task
26. Constructing Identical Boxes
27. Length and Width*
29. A Floor Plan
36. Understanding Place Value*
37. Positive and Negative Terminals

*without mathboard

Second Time

Add PVC Pipe and Sawing Wood

27. Length and Width*
34. Filing by Letter
35. Making a Dictionary
36. Understanding Place Value*

*with mathboard

Third Time

Add Drilling Wood and Soldering

28. Finding Electrical Connections
43. Making a Jig
44. Sanding and Spray Painting
45. Make Something

Whenever Possible

Any of these lessons can be added to the first time activities if you can obtain the materials.

30. Measuring Volume
31. A Metal Shelf
32. Making Pancakes
33. Weighing Things
38. 12 Volt Battery and Bulb
39. Circuit with Many Bulbs
40. Attribute Sets
41. A Shirt Pattern
42. Sewing a Shirt

Appendix: 1

GETTING BIGGER

After you have accumulated enough tools and materials for teaching one class, you can expand the number of classes without having to buy duplicates. Two ways to modify schedules to cut costs - scheduling classes at different times of the day and teaching more than one lesson at the same time are described if the "Getting Bigger" section of Book 1.

In Unit 3, each set of three lessons can also be grouped together. For example, Lessons 25, 26 and 27 can be taught simultaneously in different classes without much overlap of materials. Similarly, Lessons 28, 29 and 30; 31, 32 and 33; 35 and 36 can be taught interchangeably.

Unit 4 is organized differently. There are three groups of related lessons: electricity, sewing and woodworking. In the Panat Nikom program, each group was taught for a week.

Here's a sample of a schedule for three weeks:

	Mark's Class	Noi's Class	Sally's Class
Week 1	Electricity	Sewing	Woodworking
Week 2	Woodworking	Electricity	Sewing
Week 3	Sewing	Woodworking	Electricity

As you design your own lessons, and plan when to teach simulations and optional lessons, keep materials requirements in mind.

If you teach a five-day week it is convenient to have a review day on Friday. This may be needed for finishing up projects in Unit 4. Then, begin the next set of lessons the following Monday.

HOW TO USE THE MASTER LISTS

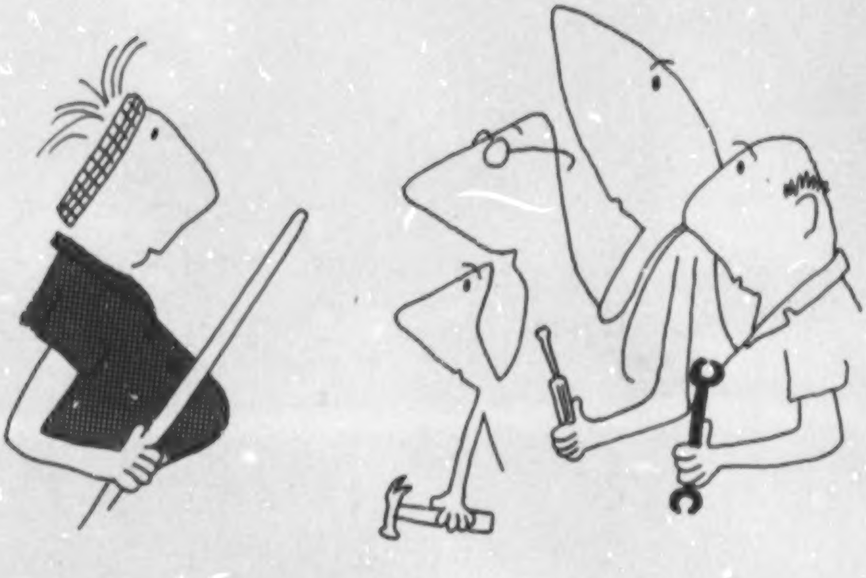
These lists provide information about the tools, materials, preparation and handouts needed for Lessons 25-45. They can be used as an aid in shopping, planning and preparing for lessons.

The "Long Life Materials" list indicates how many items are needed for a class of 12 students. On the other lists, the quantity is not indicated since how much you use will depend on how you teach the lesson.

On both lists, tools and materials which are needed to teach Lessons 1-24 (Shifting Gears, Book 1) are starred. Consult the Tools and Materials list of Book 1 for quantities and other details. Whenever possible, tools and materials and teacher preparations from Book 1 are reused in Book 2; so if you shop for materials for lessons from both books, the lists should be combined.

All materials that do not change as a result of being used in the lessons are listed under "Long Life Tools and Materials." Materials such as nuts, bolts and shelf pieces can be used many times. Things that are used up, changed, wear out quickly or get lost (such as felt pens, wire and paper clips) are listed under "Short Life Materials."

Tools and materials listed for the Simulations, Optional Lessons and Language and Literacy Games do not appear on the Master List since these lessons are all supplementary. As much as possible, however, materials which are already on the Master Lists have been suggested.



Long Life Tools and Materials

		ACTIVITY LESSONS
Item	Maximum Quantity per class of 12	Used in Lesson
Back Saw*	6	33, 43, 44
Battery, 12 volt	1	38, 39
Bell	1	45
Bobbin*	12	42
"C" Clamp (6" or 8" size)*	6	33, 43
Clock (with second hand)*	3	25, 43
Combination Lock	6	25, 33
Compass*	12	40, 45
Container, quart	4	30
Container, gallon	2	30, 32
Container, 2 gallon*	1	30
Counter-Sink Bit*	6	43
Dishpan	2	32
Door Lock Assembly Kit (latch type)	10	25
Drill Bits (set, sizes 1/16" - 1/4")	6	43, 45
Egg Beater	1	32
Fork (plastic or metal)	36	25, 32
Hammer	2	29, 33, 45
Hand Drill*	6	33, 43, 45
Hand Saw (10 or 12 point)*	6	29, 33, 43, 45
Hand Sewing Needles (medium size)*	3	45
Iron, electric	1	42

Appendix: 2

Long Life Tools and Materials (cont'd)

ACTIVITY LESSONS

Item	Maximum Quantity per class of 12	Used in Lesson
Knife (plastic or metal)	36	25, 32
Light Bulb - 2.5 V.	4	38
6 V.	4	38
12 V.	6	38, 39
40 Watt	2	45
Light Bulb Socket for 6 V. bulb	8	38
for 12 V. bulb	6	39
for 40 W bulb	2	45
Long-Nosed Pliers*	2	28, 33, 38, 39
Measuring Cup (with ¼C. and ½C. marks on side)	1	30
Measuring Cups (1 set contains ¼C., ½C., 1C.)	4	30, 32
Measuring Spoons (1 set contains ¼t., ½t., 1t.)	4	30, 32
Mixing Bowls (set of 3, small, medium and large)	2	32
Pan (6" - 8")	2	32
Paper Punch	1	35
Pencil Sharpener*	1	Most Lessons
Pincushion	4	41, 42
Pin, Package of 50*	4	41, 42
Plate	12	32
Plug (with screw terminals)	5	45
Pot (with boiling water)	1	32

Long Life Tools and Materials (cont'd)

		ACTIVITY LESSONS
Item	Maximum Quantity per class of 12	Used in Lesson
Rasp, (3-4 varieties, for woodworking)*	6	33, 43, 45
Razor Knife (and Extra Blades)*	6	26, 29, 33, 38, 39, 45
Rubber Stamps (set, numbers 1-9)	1	35
Saber Saw (and Extra Blades)*	2	33
Scales		
Range 0-6 lbs. calibrated in ounces	2	33
Range 0-1 lb. calibrated in half ounces (postage scale)	2	33
Range 0-3 kilograms calibrated in 10 gram intervals	2	33
Scissors*	12	26, 29, 33, 34, 35, 40, 41, 42
Screwdriver (medium size)*	6	25, 29, 31, 33, 43, 44, 45
Sewing Machine*	4	42
Sewing Needle, Hand	12	41, 42
Sewing Needle, Machine*	12	42
Spatula	2	32
Spoon (plastic or metal)	36	25, 30, 32
Square, Carpenter's*	6	33, 43, 45
Stove, Gas	1	32
Switch, Common (with 2 screw terminals)	2	45

Appendix: 2

Long Life Tools and Materials (cont'd)	Maximum Quantity per class of 12	ACTIVITY LESSONS Used in Lesson
Tape Measure (calibrated in inches and centimeters)*	4	29, 31, 41, 42
Timer/Stop Watch*	3	25
Tracing Wheel*	4	41, 42
Tray, Plastic (for sorting silver ware)	9	25
Wire Cutter*	2	29, 33, 38, 39, 45
Wrench, Crescent or Open-End	6	31, 33

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*Starred items also used in Shifting Gears, Book I.

Short Life Materials

Item	ACTIVITY LESSONS Used in Lesson
Baking Powder	32
Carbon Paper (8½" x 11")*	26
Cardboard	
Heavy weight, (8½" x 11" sheet)	26, 45
Poster paper*	36, 41, 43
Chalk, box of colored	33
Chalk, box of white	29
Chalk, Tailor's	42
Chocolate Drink Mix	30
Cloth, Cotton*	41
Cloth, Synthetic (small 2" x 2" pieces)	38
Cloth, (yellow, 8½" x 11")	40
Coffee, jar	32
Construction Paper, heavy weight (red, green, blue, 8½" x 11")	40
Cord, heavy weight (red, green, blue, black, yellow)	40
Cups, 10 oz. drinking	30, 32
Dish Detergent, bottle	32
Egg	32
Envelope (business size)	25
Eraser, Gum Type*	Most lessons
Felt Pen, Large tip*	36, 41, 43

Short Life Materials (cont'd)

Item	ACTIVITY LESSONS Used in Lesson
File Folder (letter size)	35
Flour	32
Glue (in a container)*	26, 35, 45
Glue Applicator (wooden popsicle stick)*	26, 35, 45
Ink Pad	35
Maple Syrup, bottle	32
Margarine	32
Masking Tape, roll*	29, 45
Matches, box	32
Metal Sheet (30 cm. x 30 cm.)	39
Nails (medium size)	45
Newsprint, poster-size sheets	44
Oil, Vegetable*	32
Paper Fastener	35
Pencil*	Most Lessons
Pencil, colored	26, 27
Plain Paper (8½" x 11")*	25, 34, 35, 38, 45
Plastic Bag, zip lock	40
Plastic Sheet, lightweight (black, 8½" x 11")	40
Powdered Milk	30, 32
Rubber Bands (assorted colors)*	27, 28, 37

Short Life Materials (cont'd)

Item	ACTIVITY LESSONS Used in Lesson
Salt	30, 32
Sand Paper (fine grade)*	44
Scouring Pad	32
Screws (1½" flat head wood screw)*	43, 45
(2" flat head wood screw)	43
Sponge (for cleaning)	32
Spray Paint	44
Straw, Drinking	38
String (thick, non-stretching)*	29
Sugar	30, 32
Thread, spool*	41, 42, 45
Towel	32
Tracing Paper (package for use with tracing wheel)*	42
Wire, Bell (red and black)*	38, 39, 45
Wood - (1" x 1")	44
(1" x 2")	43
(1" x 3")	43
(1" x 4")	43
Scrap	45

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*Starred items also used in Shifting Gears, Book 1.

Appendix: 2

Preparations

Item	Maximum Quantity per class of 12	Used in Lesson
Alphabet Flashcards (set A to Z)	6	25, 29, 34, 35
Attribute Game Set	1	40
Battery with male and female connectors, 1.5 V. D-cell	32	38
Battery Holder, 12 V.	1	38, 39
Cardboard Boxes (student-made in Lesson 26)	12	28
Cardboard Box Sample	1	26
Cardboard Circle Set (each set of 3 circles divided into 2, 5 and 10 equal parts respectively)	3	25
Faceplate for 0-6 Pound Scale (calibrated in color coded, unnumbered intervals)	2	33
File Box	6	34
Finished Shirt	1	41, 42
Hose Clamp, automobile type	2	38, 39
Jig Diagram (chart size)	1	43
Jig, premade	1	43
Jig Spacers (cut from 1" x 1" stock)		
3" long	4	44
2" long	4	44
Jig Spacer Set (sample of 1", 1½", 2½", 3", 4" lengths)	2	44
Jig (student-made in Lesson 43)	12	44

Preparations (cont'd)

Item	Maximum Quantity per class of 12	Used in Lesson
Mathboard	12	27, 36
Number Flashcards (1-6)	1	29
Pancake Recipe Wallchart	1	32
Picture Dictionary	1	35
Plastic Bags labeled ½t., 1t., 1T., ½C., 1C.	40	30
Student Name Slips (set of 15, last name first)	6	34
Shelf Kits (see Lesson 31)		
Plywood Pieces (½" x 11½" x 23½")	6	31
12" Metal Pieces	12	31
24" Metal Pieces	12	31
36" Metal Pieces	12	31
48" Metal Pieces	4	31
Brackets	75	31
Nuts and Bolts	225	31
Shirt Patterns (various sizes)	4	41, 42
Terminal Board (from Lesson 23)	1	38, 39
Test Light*	12	28, 45
Wire, 60 cm. with alligator clips at each end		
Bell wire, Black	12	38, 39
Bell wire, Red	12	38, 39
Heavy gauge, Black	1	39
Heavy gauge, Red	1	39

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*Starred items also used in Shifting Gears, Book 1.

Appendix: 2

Handouts

ACTIVITY LESSONS

Item	Maximum Quantity per class of 12	Used in Lesson
Charts:		
5 Steps to Construct a Box	1	26
Pattern for Box	2	26
Diagrams:		
Metal Shelf Instruction (5 steps per set)	4	31
Tool Pictures (5 pages per set)	12	34, 35
Woodworking Design A: A Stool	1	43
Woodworking Design B: A Box	1	43
Floor Plan "A"	12	29
Forms:		
Application Form (for jobs)	12	Simulation
Attribute Cards Work Order	3-6	40
Circuit Box Test	24	28
Floor Plan Code	12	29
Time Card	12	Most lessons
Timing A Task	12	25
Tools and Materials Inventory	1	Most lessons
Which Are Equal?	12	30
Grid Paper:		
3 cm. squares	24	27
2 cm. squares	24	26

Time Card

NAME (PRINTED)			
DATE	IN	OUT	NAME (SIGNATURE)
MON.			
TUE.			
WED.			
THUR.			
FRI.			

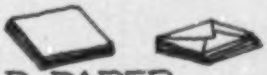
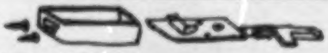
Appendix: 3

Tools and Materials Inventory Form

TOOLS/MATERIALS	CHECK OUT (OUT OF SUPPLY ROOM)	MATERIALS ROOM A=ADD C=CHANGE	CHECK IN (INTO SUPPLY ROOM)	BROKEN

Appendix: 3

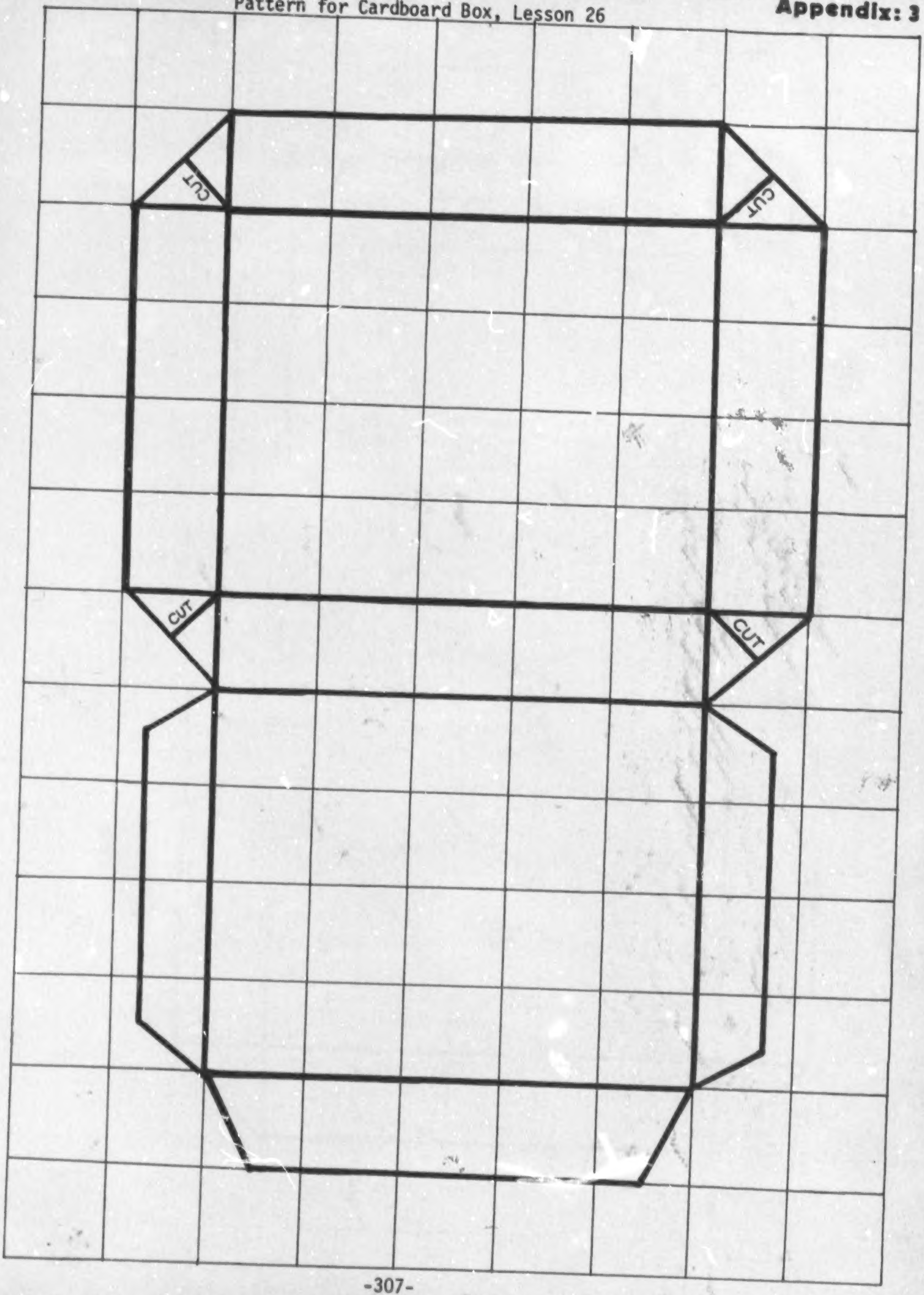
Timing a Task Form, Lesson 25

TASK	MINUTES 	SECONDS
1. SORT SILVERWARE		
2.  FOLD PAPER STUFF ENVELOPES		
3. OPEN COMBINATION LOCK		
4. MAKE CIRCLES		
5.  TAKE APART A DOOR LOCK		
6. WRITE TOOL NAMES		
7. ASSEMBLE DOOR LOCKS		
8.		
9.		
10.		

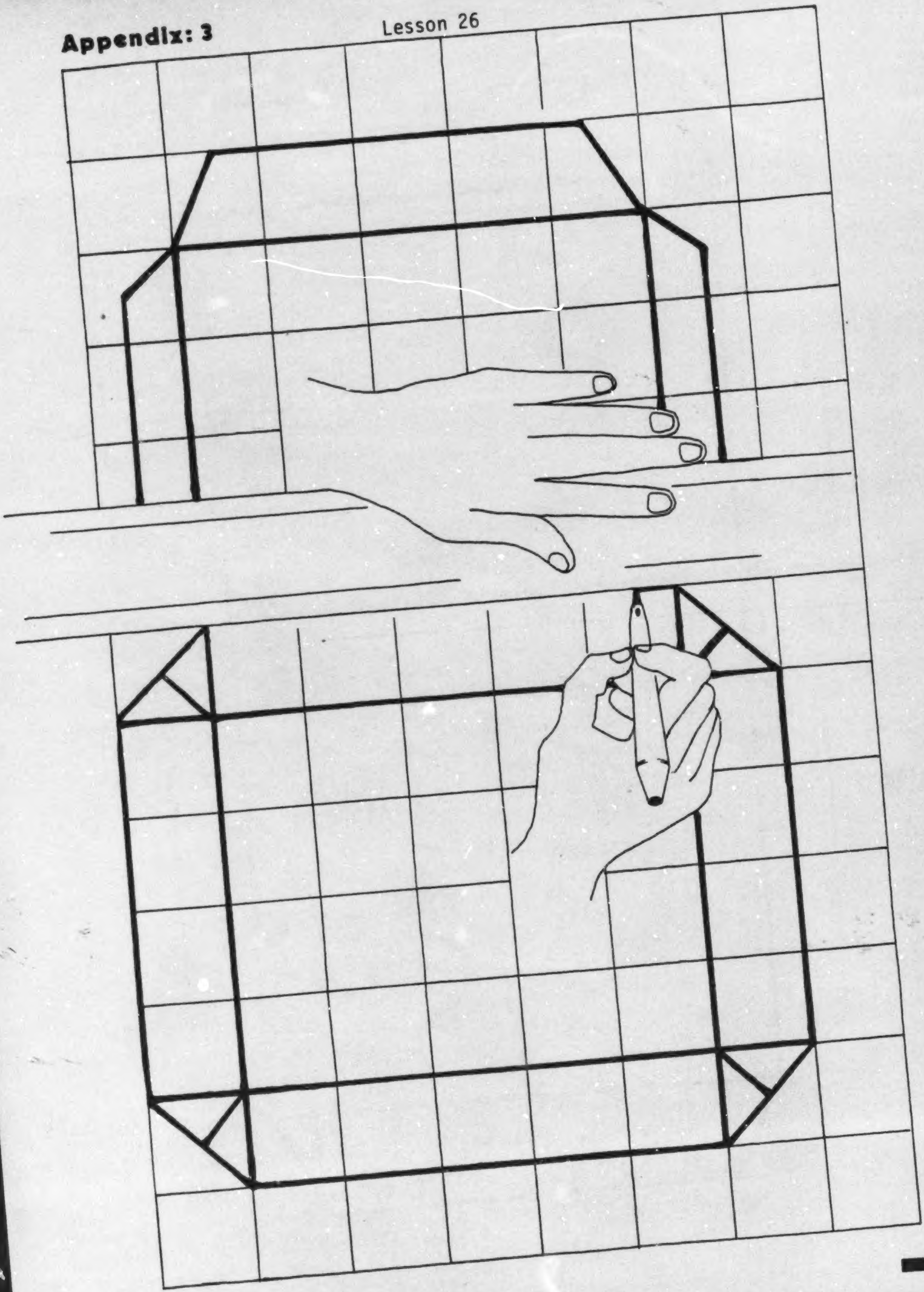
Appendix: 3

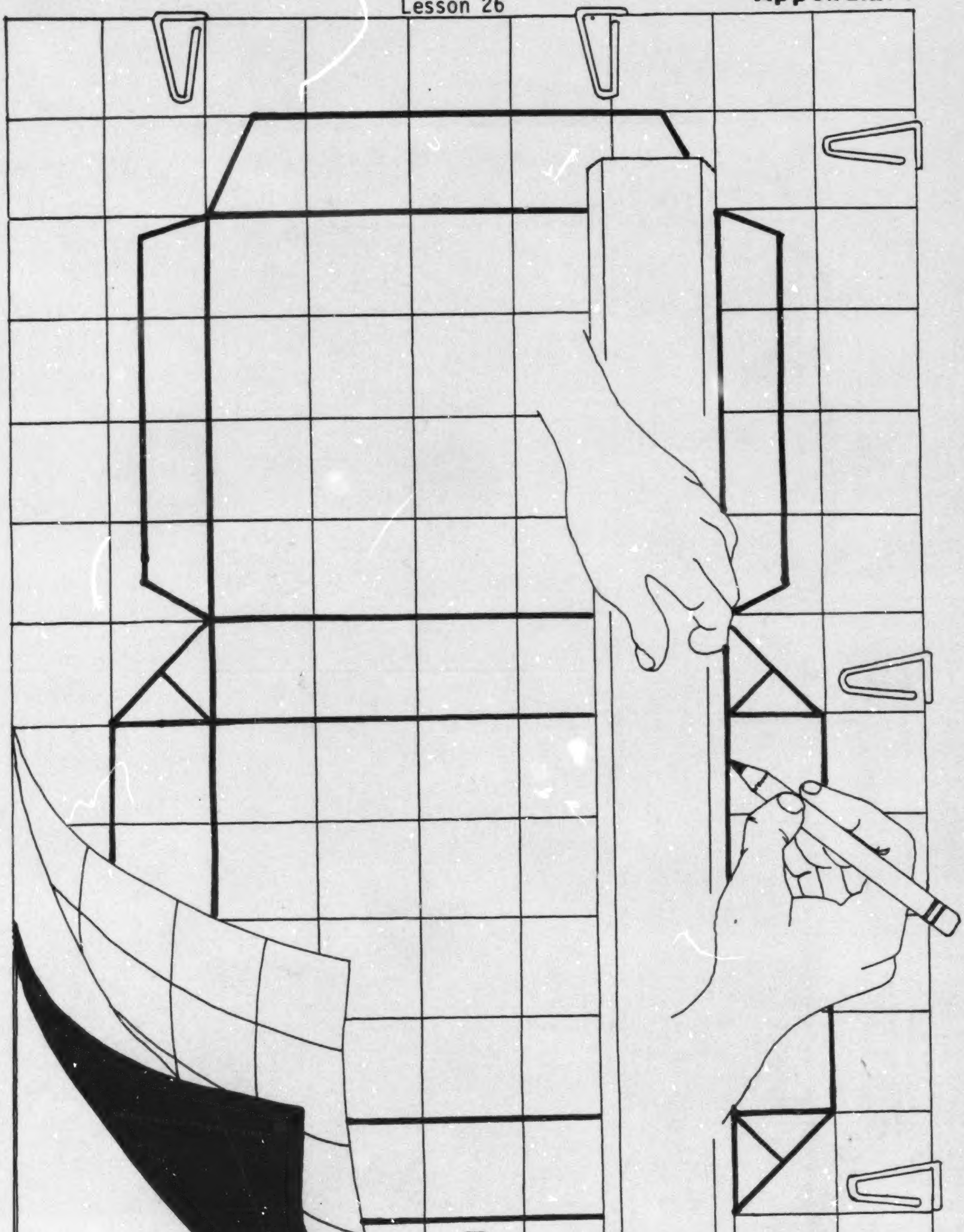
Grid Paper: 2 cm. Squares, Lesson 26

Pattern for Cardboard Box, Lesson 26


CUT
CUT
CUT
CUT

Lesson 26





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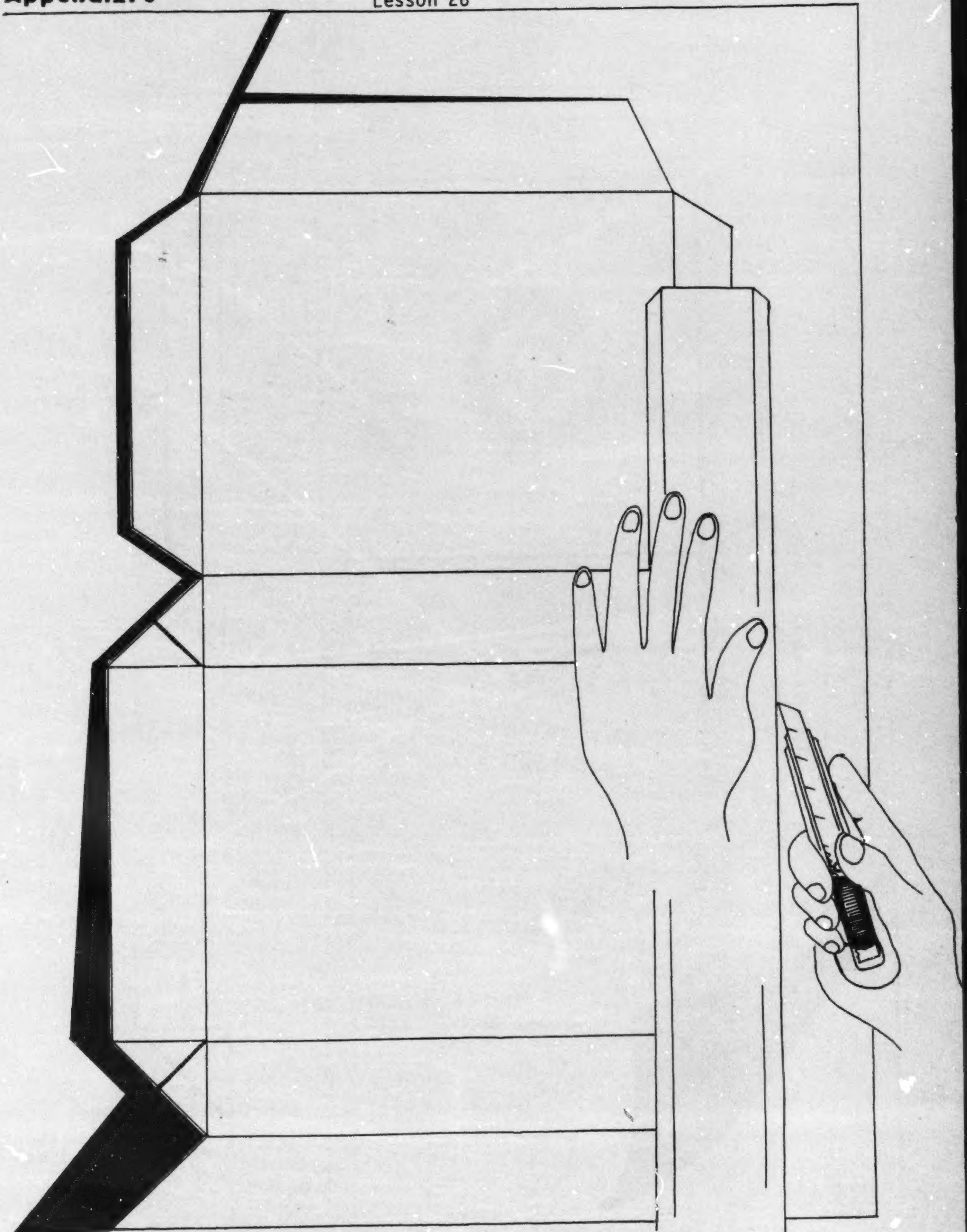
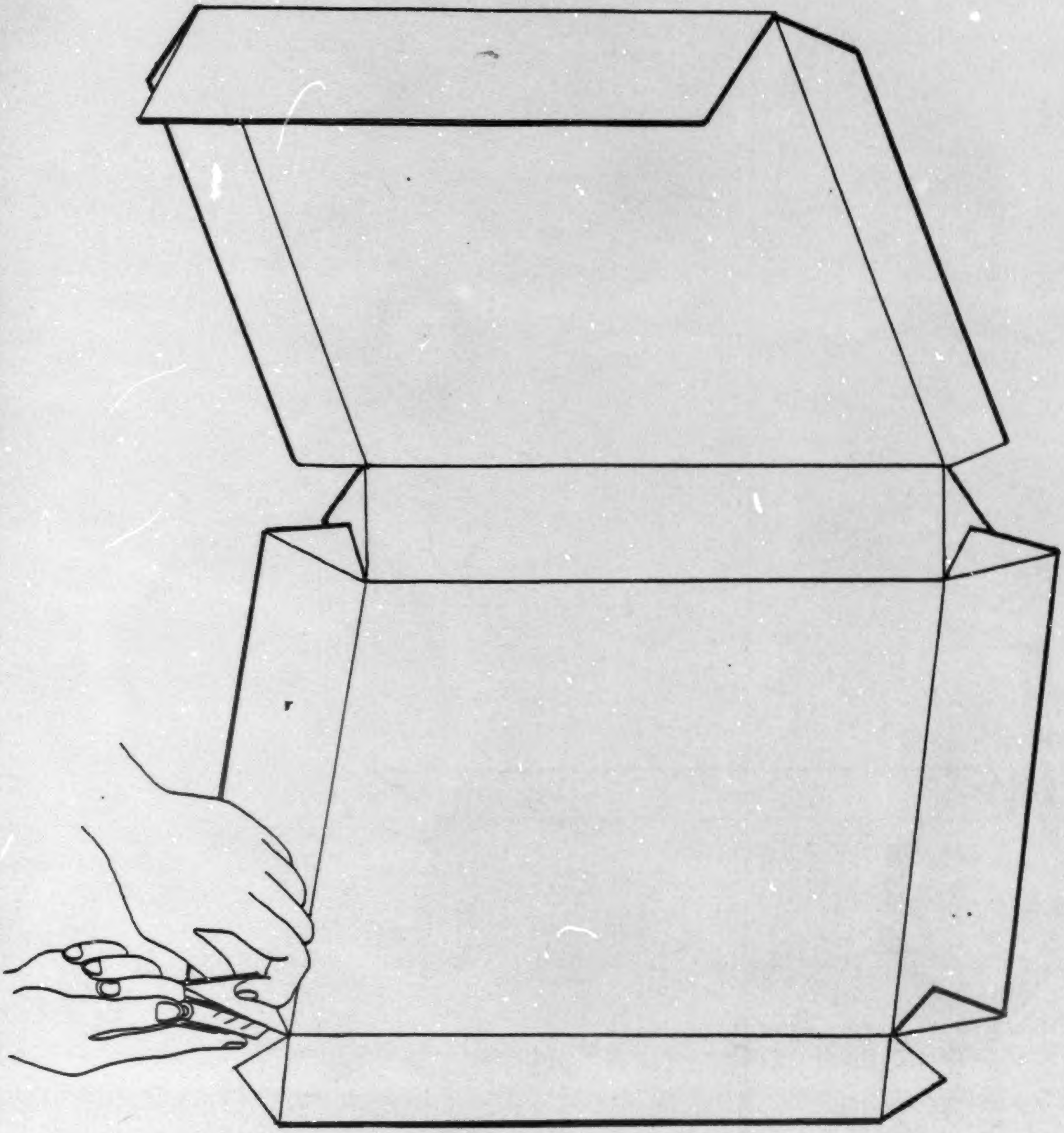


Appendix: 3

Lesson 26



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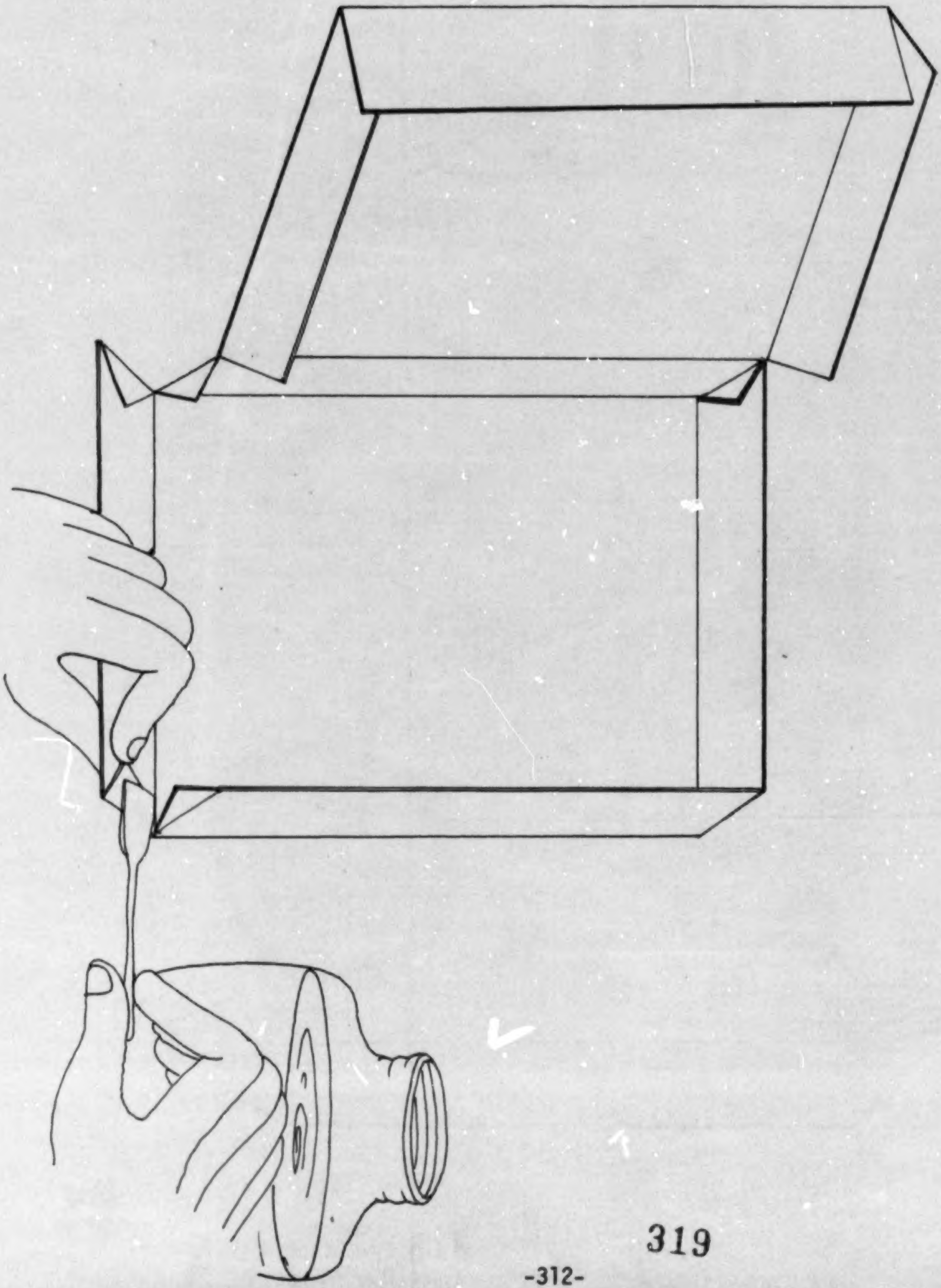
Appendix: 3

Lesson 26



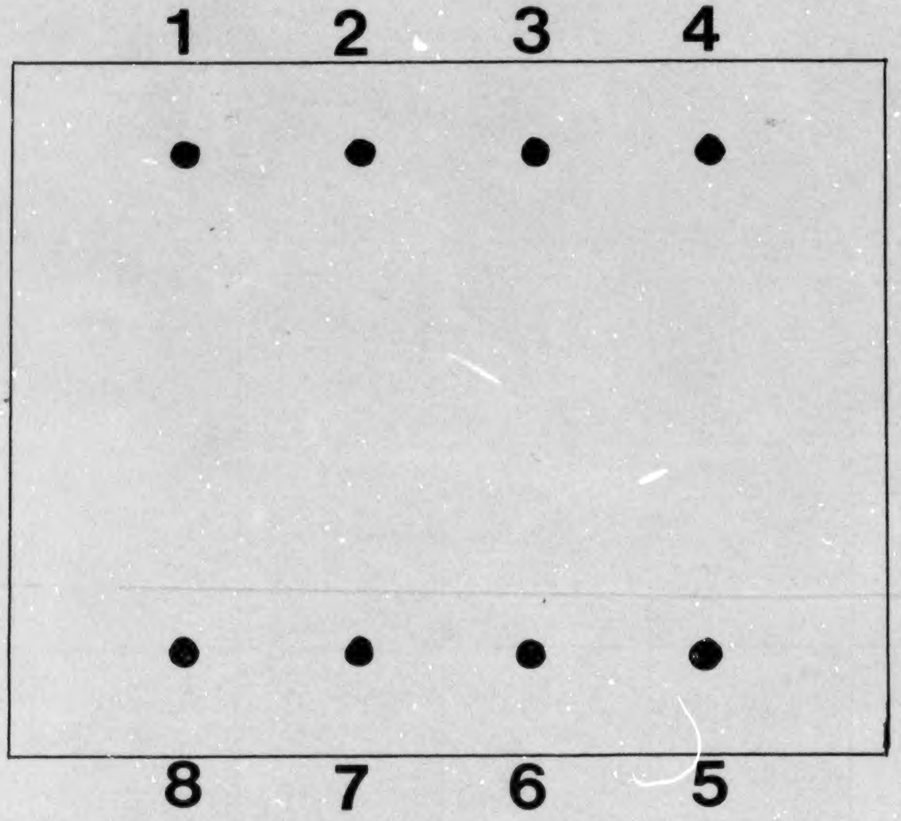
Appendix: 3

Grid Paper: 3 cm. Squares, Lesson 27

Appendix: 3

Circuit Box Test Form, Lesson 28

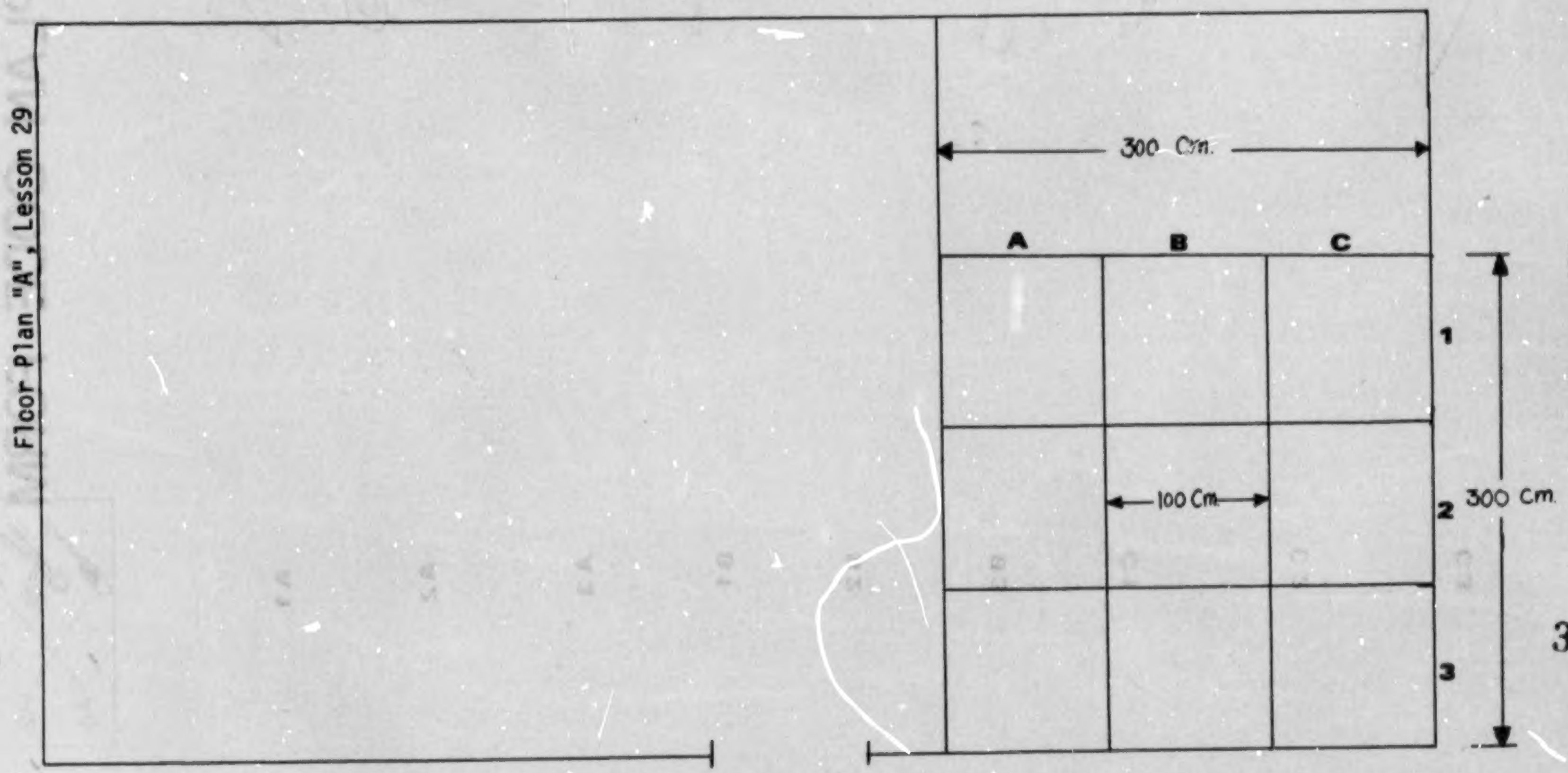
NAME ________________________________



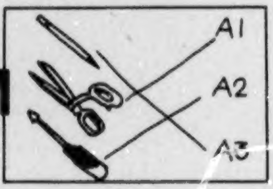
Appendix: 3

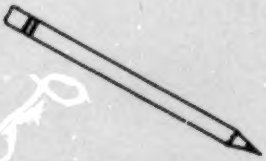
FLOOR PLAN "A"
with grid

Floor Plan "A", Lesson 29


300 Cm.
A
B
C
1
2
3
100 Cm
300 cm.

FLOOR PLAN CODE FORM





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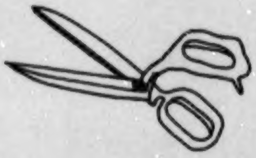
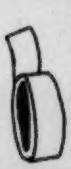


A2



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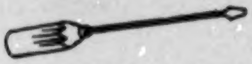

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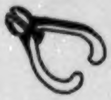
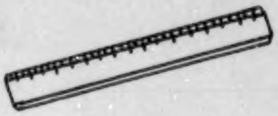
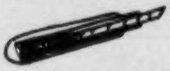


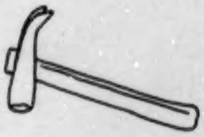
B2



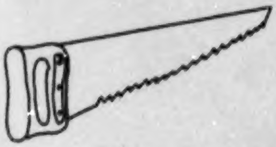
B3

C1





C2

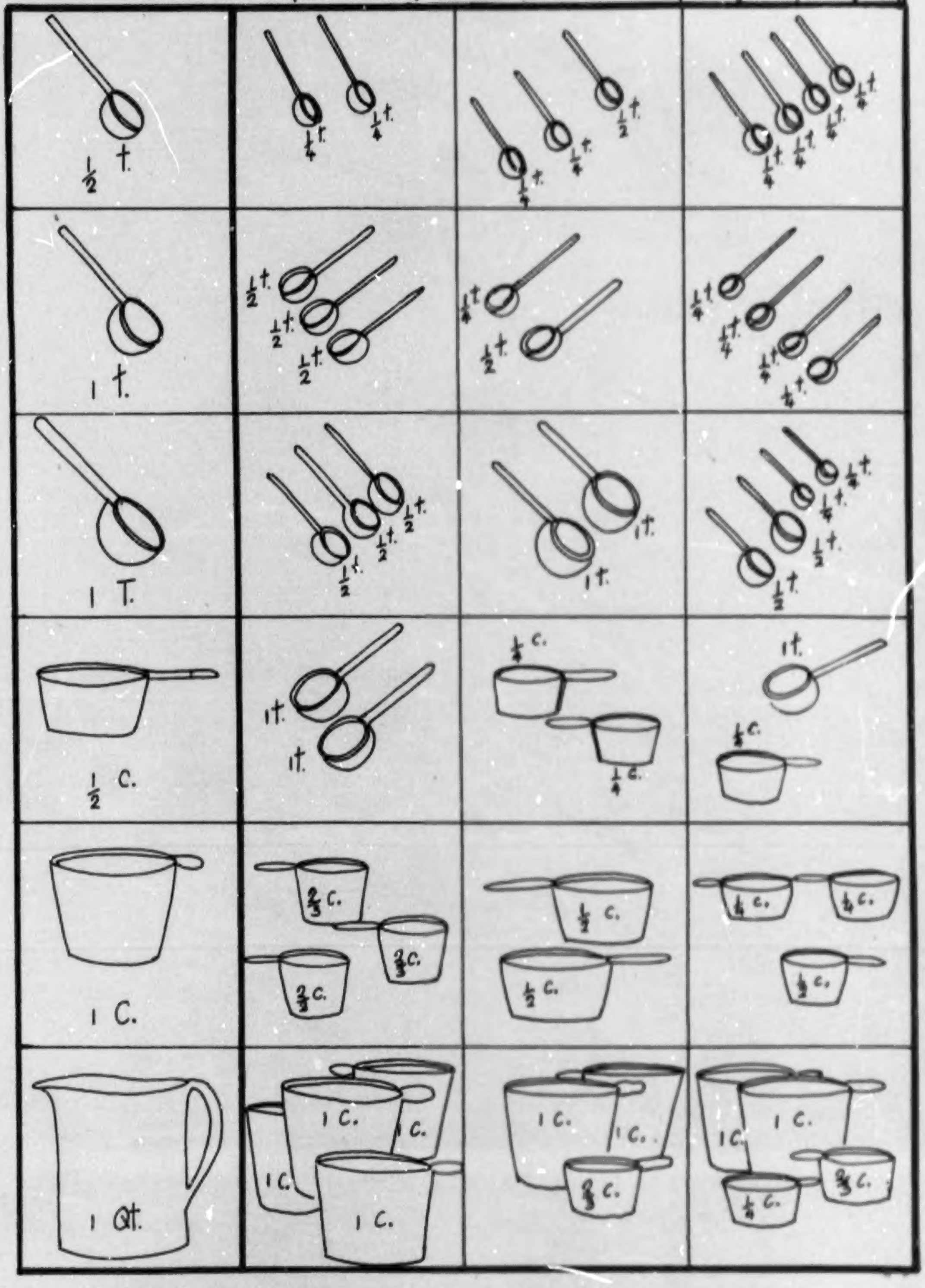


C3

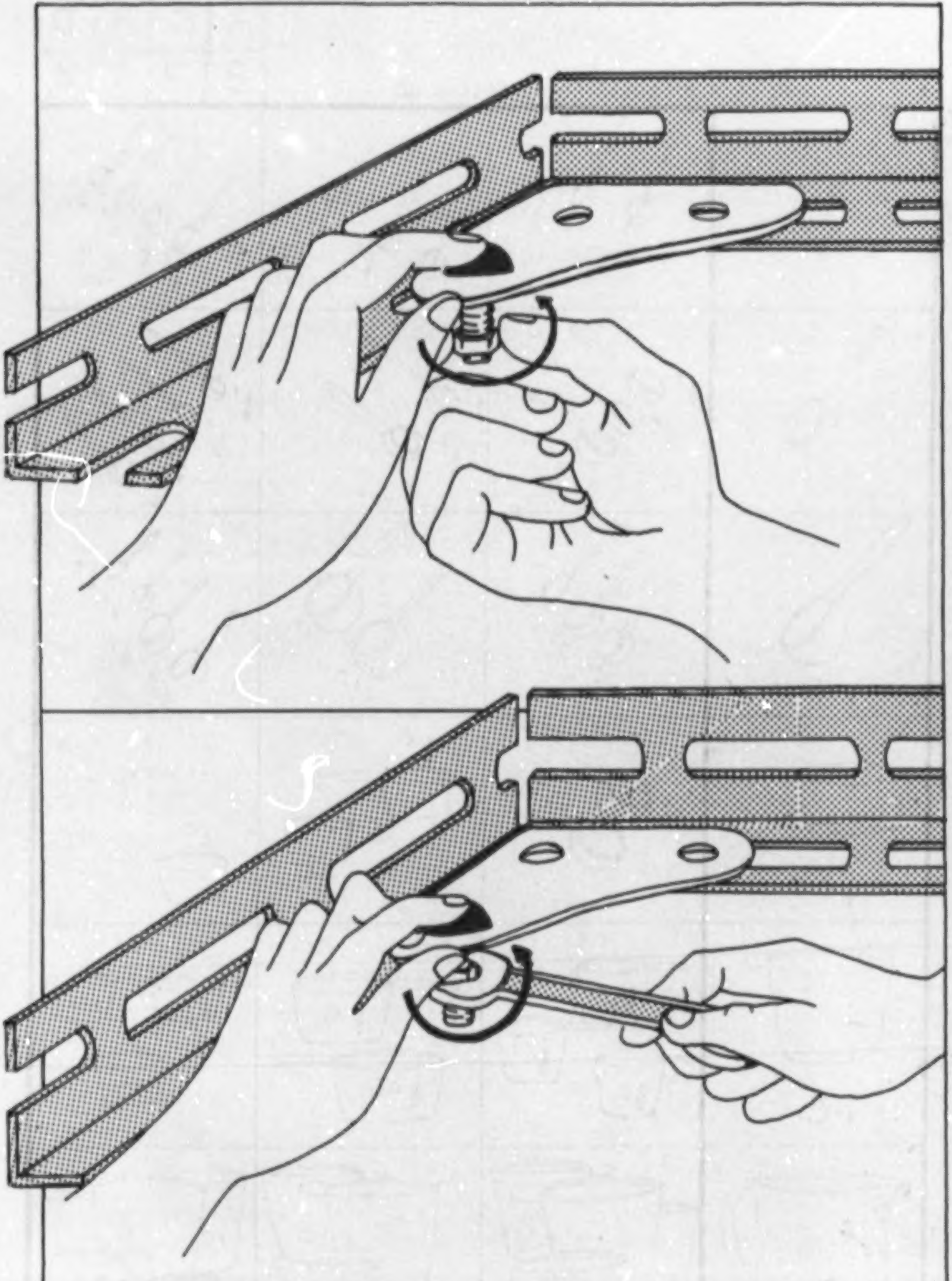
Appendix: 3

A	C	~~A~~	D
B	R	E	~~B~~

Which Are Equal? Form, Lesson 30


½ t.
¼ t. ¼ t.
¼ t. ¼ t. ½ t.
¼ t. ¼ t. ¼ t. ¼ t.
1 t.
½ t. ½ t. ½ t.
¼ t. ½ t.
¼ t. ¼ t. ¼ t. ¼ t.
1 T.
½ t. ½ t. ½ t.
1 t. 1 t.
¼ t. ¼ t. ½ t. ½ t.
½ C.
1 t. 1 t.
¼ c. ¼ c.
1 t. ¼ c.
1 C.
⅔ c. ⅔ c. ⅔ c.
½ c. ½ c.
¼ c. ¼ c. ½ c.
1 Qt.
1 C. 1 C. 1 C. 1 C.
1 C. 1 C. ⅔ c.
1 C. 1 C. ¼ c. ⅔ c.

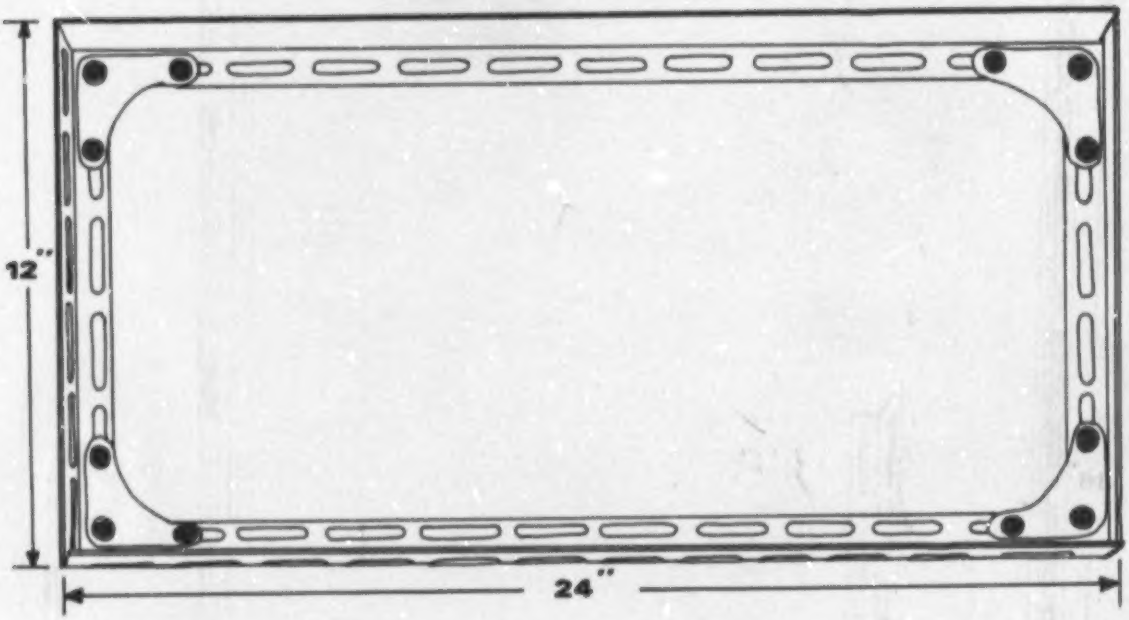
Appendix: 3 Inserting Nuts and Bolts, Lesson 31



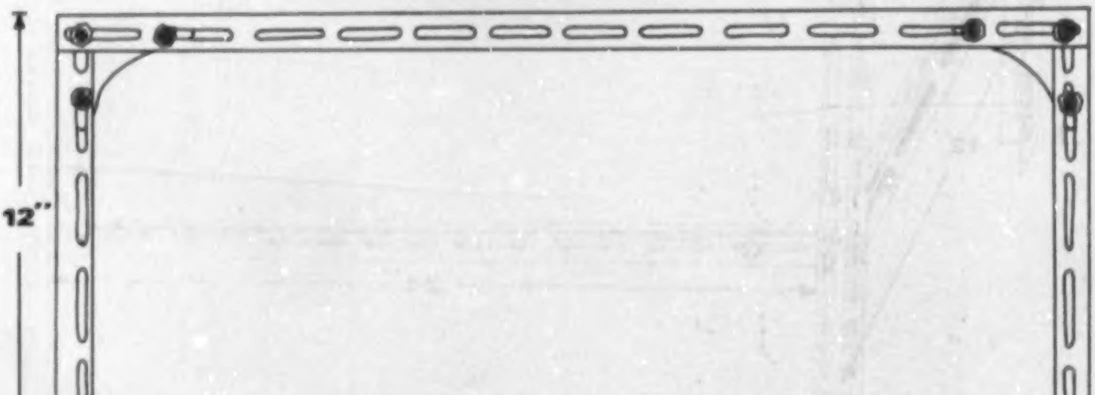
STEP 1

MAKE 2 PIECES

FRONT

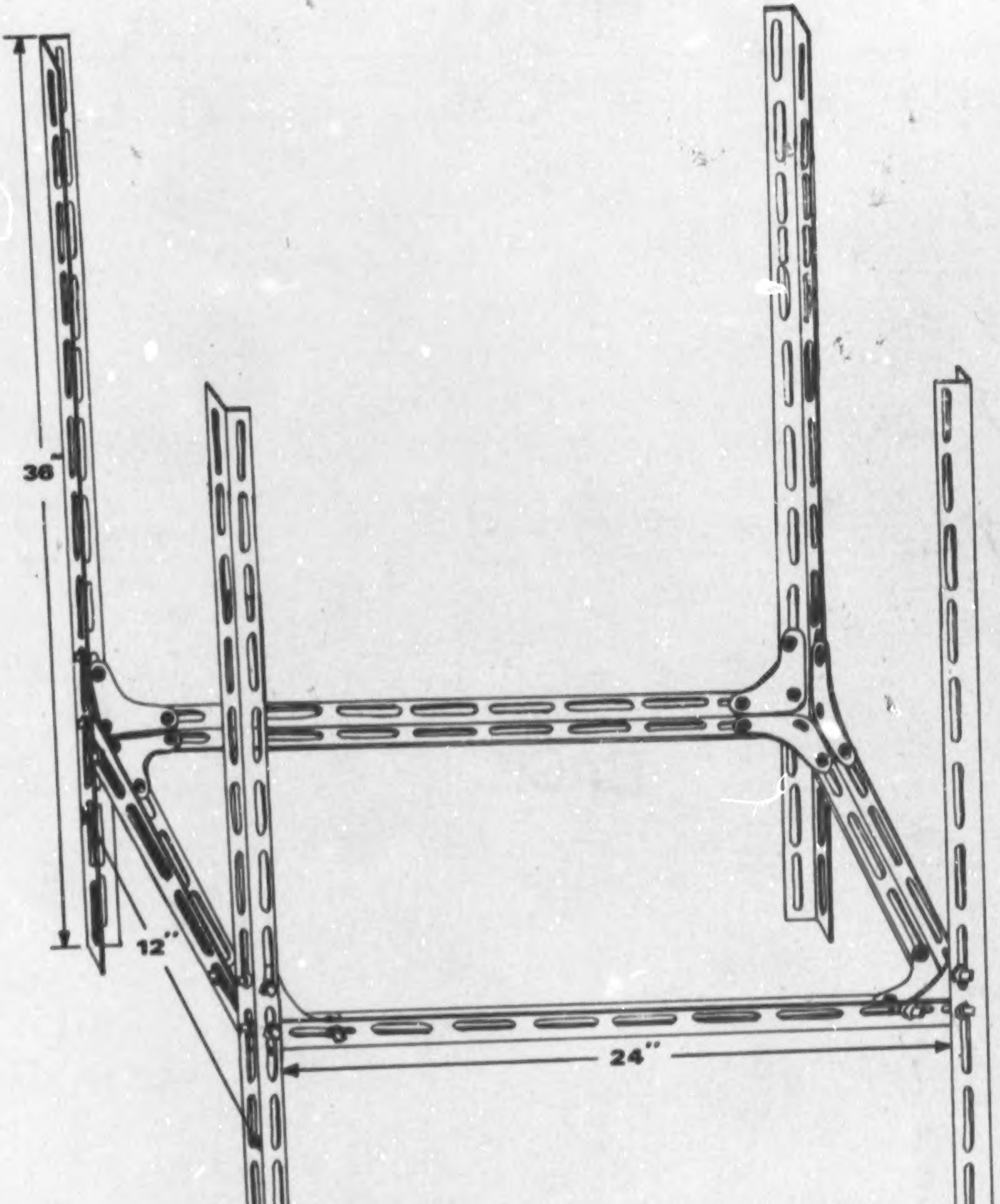


BACK



MAKING A METAL SHELF

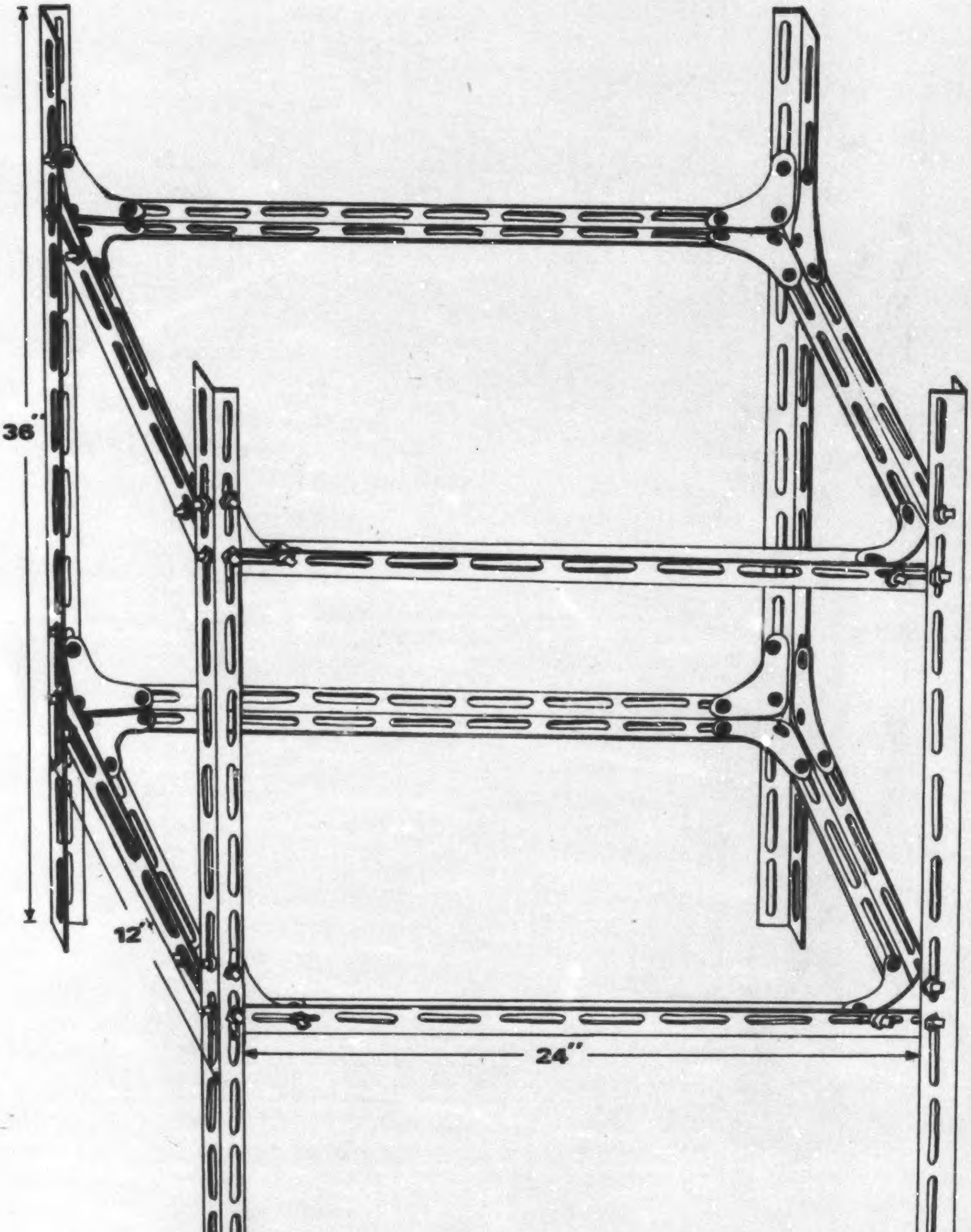
STEP 2



328

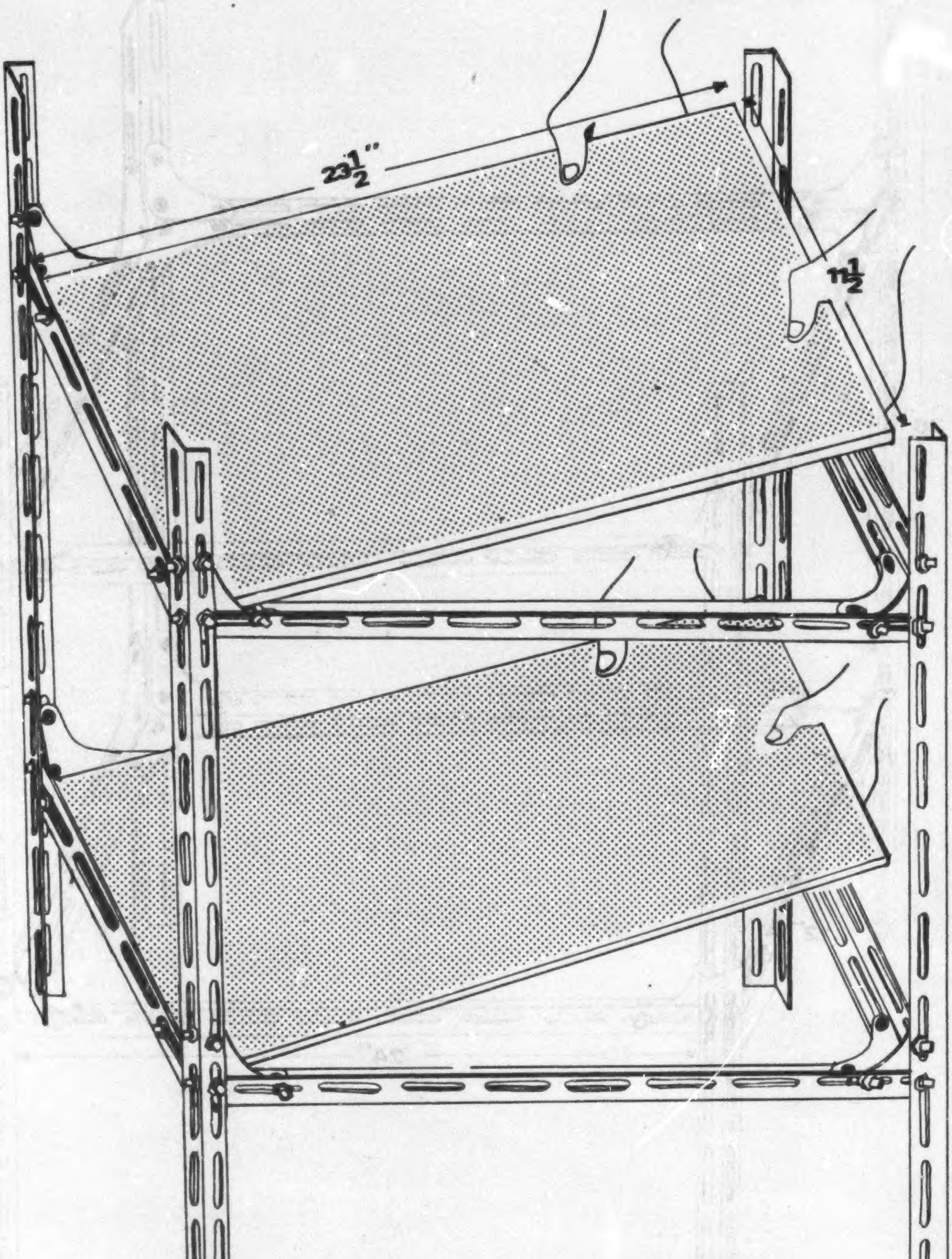
MAKING A METAL SHELF

STEP 3



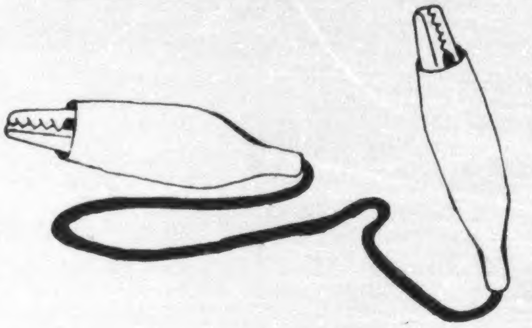
MAKING A METAL SHELF

STEP 4

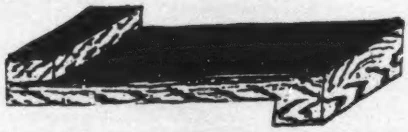


Making a Dictionary, Lesson 35

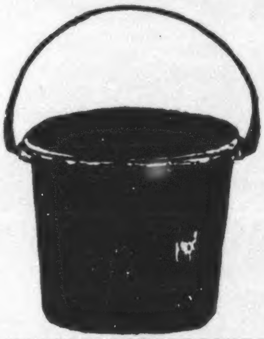
ALLIGATOR CLIP



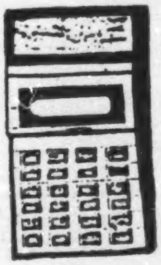
BENCH HOOK



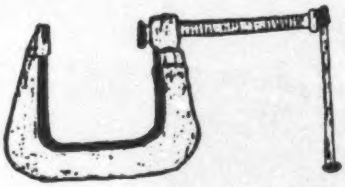
BUCKET



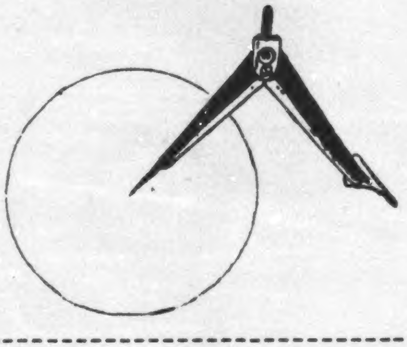
CALCULATOR



C-CLAMP



COMPASS

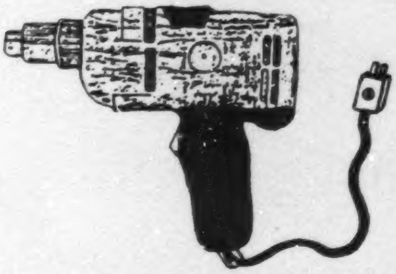


Appendix: 3

Making a Dictionary, Lesson 35

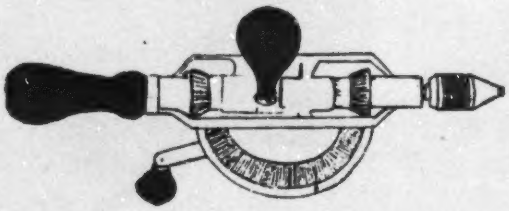
DRILL

ELECTRIC DRILL

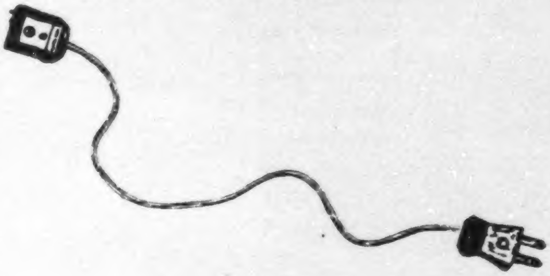


DRILL

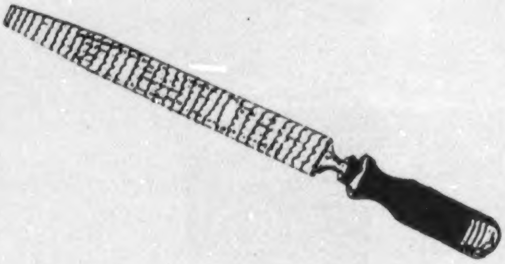
HAND DRILL



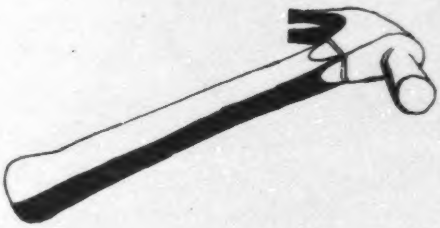
EXTENSION



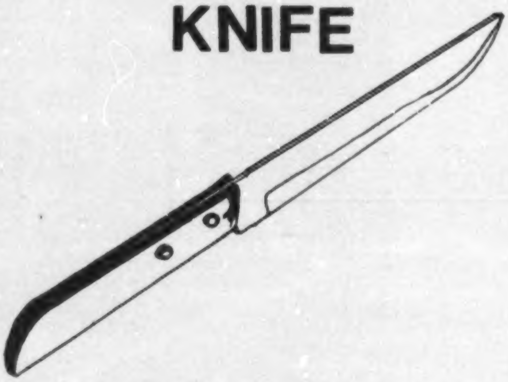
FILE



HAMMER

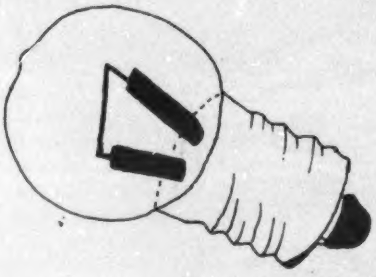


KNIFE

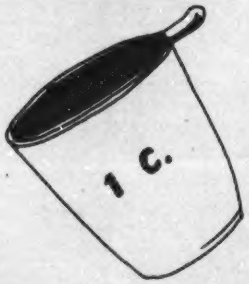


Making a Dictionary, Lesson 35

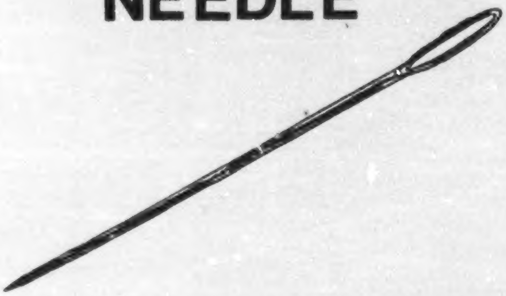
LIGHT BULB



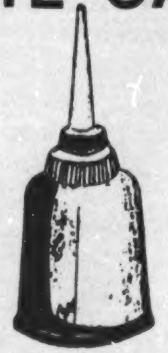
MEASURING CUP



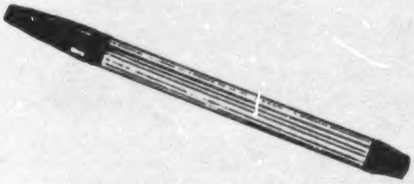
NEEDLE



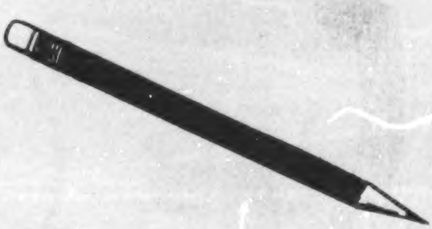
OIL CAN



PEN

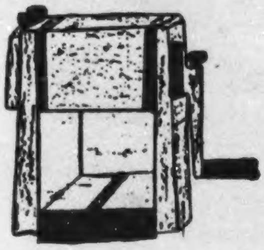


PENCIL

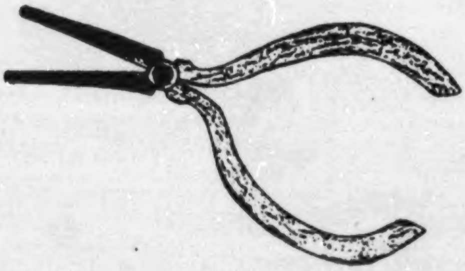


Making a Dictionary, Lesson 35

PENCIL SHARPENER

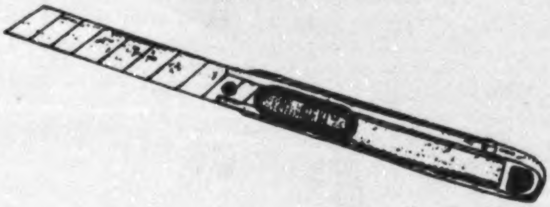


PLIERS

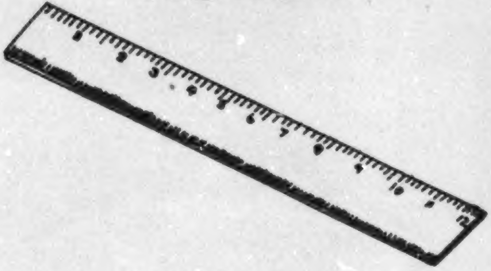


RAZOR

RAZOR KNIFE

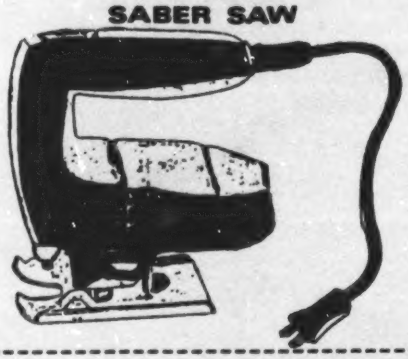


RULER

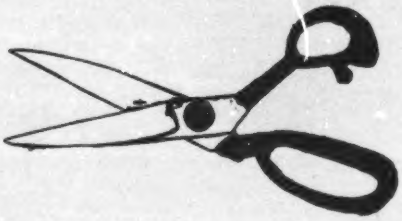


SAW

SABER SAW

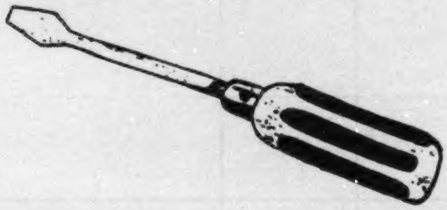


SCISSORS

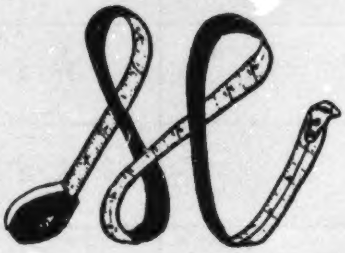


Making a Dictionary, Lesson 35

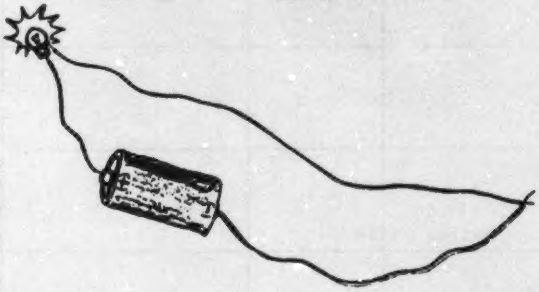
SCREWDRIVER



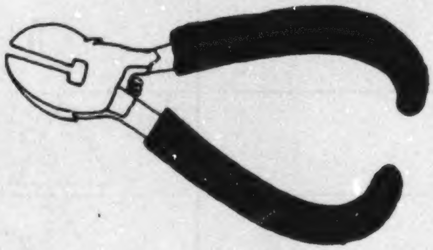
TAPE MEASURE



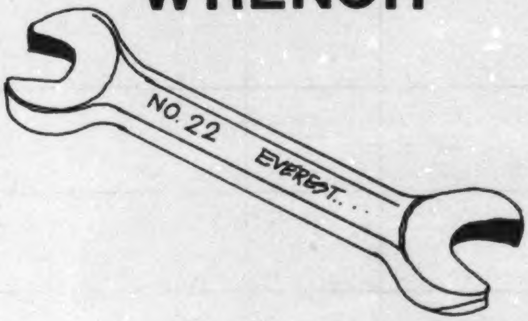
TEST LIGHT



WIRE CUTTER



WRENCH

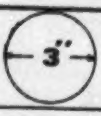
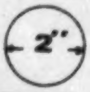
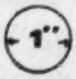
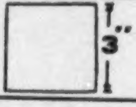
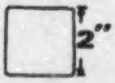
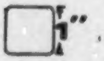
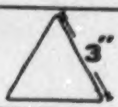
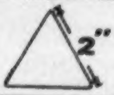
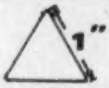
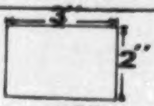
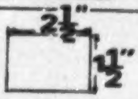
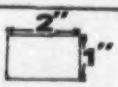
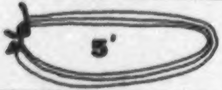

NO. 22
EVEREST...

Appendix: 3

WORK ORDER

ATTRIBUTE CARDS

Lesson 40

COLOR	SIZE / SHAPE	MATERIAL	AMOUNT	INSPECTION CHECK
				
				
				
				
				
				
				
				
				
				
				
				
				

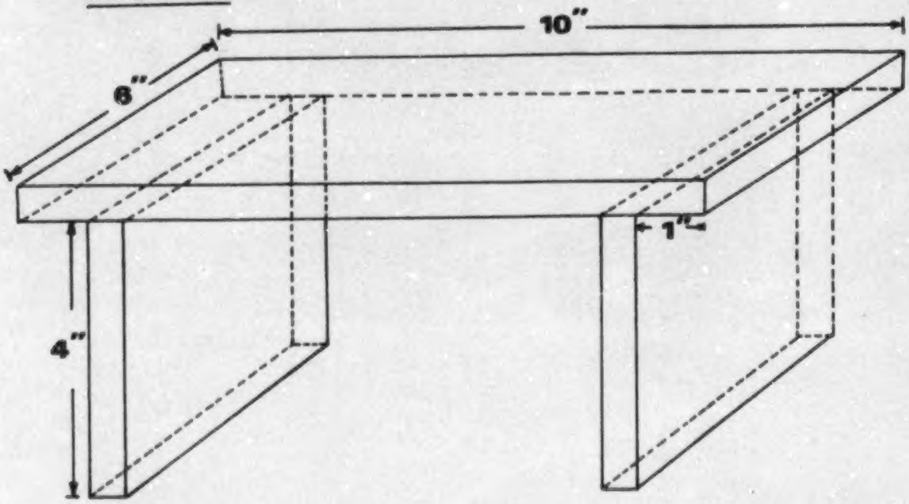
TOTAL PIECES ____________

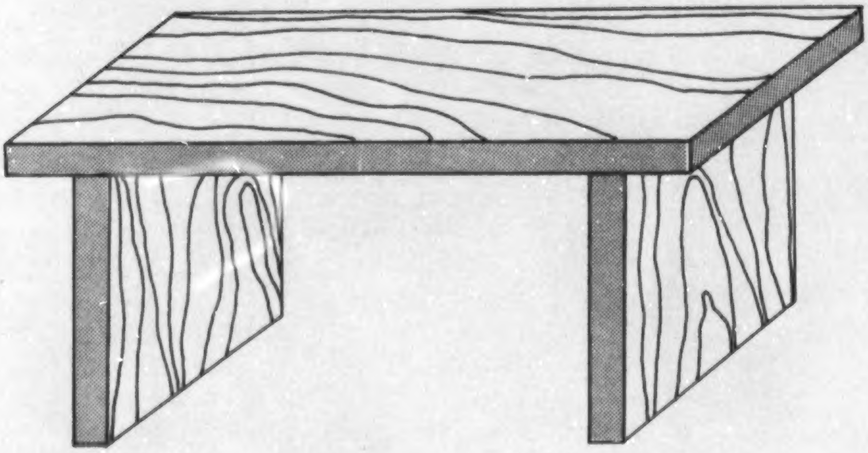
Lesson 43

Wood Working 1

DESIGN "A"

A STOOL

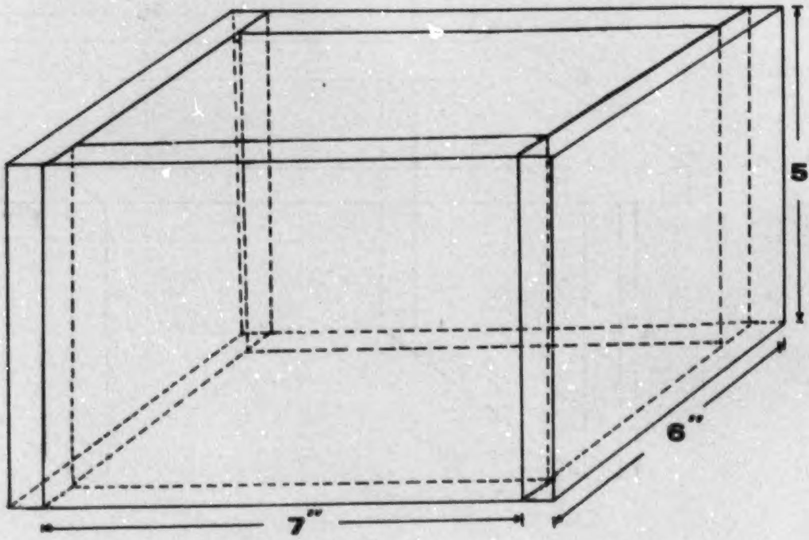


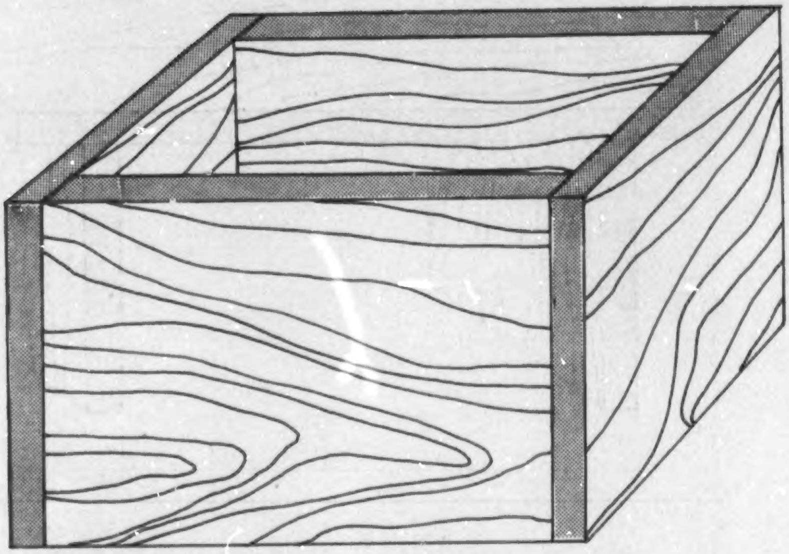


Wood Working 1

DESIGN "B"

A BOX





Appendix: 3

Job Interview Simulation

APPLICATION FORM

DATE ____________________

POSITION ________________

NAME ____
(LAST) (FIRST)

PERMANENT ADDRESS ______________________________ ______________________________
(NO. AND STREET) (CITY)

____________________________________ ____________________________________
(STATE) (ZIP CODE)

SEX M ___ SOCIAL SECURITY NUMBER ____________________

F ___ PHONE: ____________________

HEIGHT __________
WEIGHT __________

AGE __________ BIRTHDATE ______________________
(MONTH/DAY/YEAR)

U.S. CITIZEN: YES ___ NO ___ BIRTHPLACE ______________________

MARITAL STATUS

MARRIED ___ WIDOWED ___ SEPERATED ___
SINGLE ___ DIVORCED ___

SPOUSE'S NAME ________________________ NO. OF CHILDREN ________________

IN CASE OF ACCIDENT, NOTIFY ____
ADDRESS ____________________________ PHONE: ______________________________

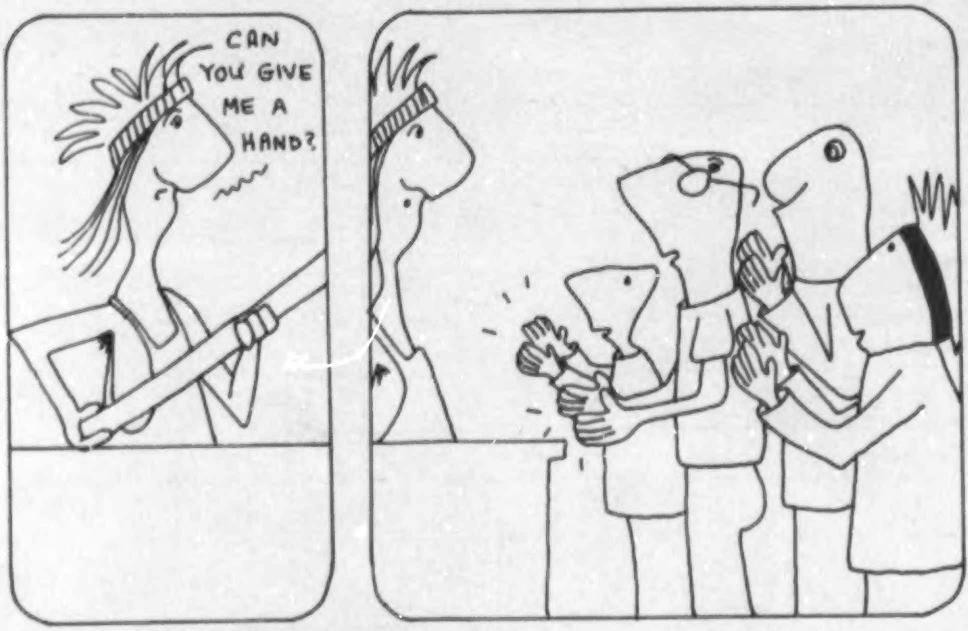
EDUCATION

	NAME&LOCATION	YEARS	GRADUATED DATE	SUBJECTS STUDIED
GRAMMAR SCHOOL				
HIGH SCHOOL				
COLLEGE				

PREVIOUS JOB ____

____

____
(SIGNATURE)


CAN YOU GIVE ME A HAND?